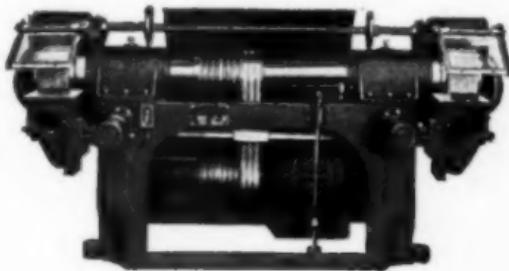


Hitchcock's Machine Tool Blue Book

JUNE, 1930

TWENTY-FIFTH YEAR

Standard High Speed Snagging Grinder



For use with Bakelite high speed ring wheels of 20", 24" and 30" diameter, 10" or 12" hole, running at 9000 SFPM.

Motors, 7½, 10 and 15 HP sizes.

General Electric Ball Bearing Motors and G. E. Push Button Control.

Shaft 4" Diameter, Nickel Steel.

Bearings, 4 SKF Heavy Duty.

The Standard Electrical Tool Co.

1948 W. 8th Street,

Cincinnati, Ohio

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

Where the shaft is
always running, and
the pulley stands still
when idle —



THE CONWAY DISC CLUTCH

is the only competent
answer to the problem

Wherever starting and stopping takes
place, make it a smoother, a more
capable and more lastingly satisfac-
tory performance. The Conway will do it.

And besides—what other clutch can
give you Drag-Free Idling—

Investigate—Have you our catalogue F-20?

THE CONWAY CLUTCH CO.
1541 Queen City Ave., Cincinnati, Ohio

Hitchcock's
**Machine Tool
Blue Book**

Selected
Circulation

25,000
Monthly

JUNE, 1930

TWENTY-FIFTH YEAR

Only \$1.60 a Page

Per 1,000 of Selected Circulation

That is the monthly cost of advertising in this publication on annual order.

The larger part of that circulation is to concerns worth \$20,000 to \$50,000 and up, and the selection of all of it is made with the greatest care, with an experience of 25 years in locating the worth-while buyers.

It is NOT cheap advertising, for that means cheap service.

IT IS, however, economical advertising—which is highly desirable for anyone who cares about his costs—for it gives most unusual service per dollar expended.

This combination of a broad and effective service at a low rate is made possible only by the Hitchcock plan of a specialized advertising medium in handy form, which has been in successful operation for a quarter of a century.

*Write for further details of this
unique and profitable service*

Published By

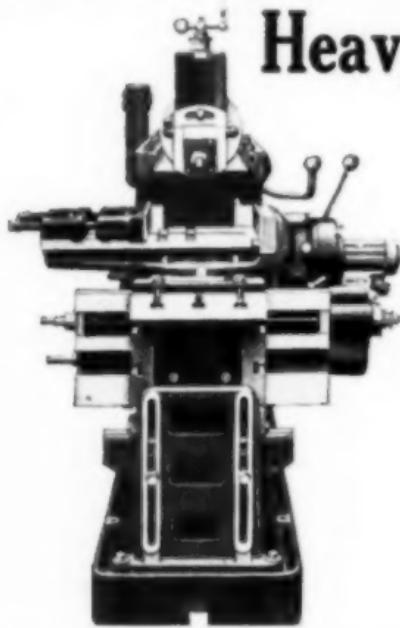
Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

Consult the Classified Finding Index for your requirements

For Speed, Accuracy and Heavy Duty Work



The NEW
AMERICAN
Auto-Oiled
SHAPER
is
Unsurpassed
!

The New American **Auto-Oiled** Shaper is the last word in shaper practice. Into it we've put all the experience gained in more than fifty years of building fine machine tools. It's built right; built to last; and incorporates the following features:

Timken Roller Bearings, automatic lubrication to every wear point, direct reading cross-feed, multiple splined gear shafts mounted on roller bearings, alloy helical gears, two-piece bull wheel, multiple disc clutch, "V" slides, direct reading of ram stroke, etc.

Write for illustrated booklet and see how Shaper design has been revolutionized in the New American "Auto-Oiled" Shaper.

The American Tool Works Company
Cincinnati, Ohio, U. S. A.

LATHES

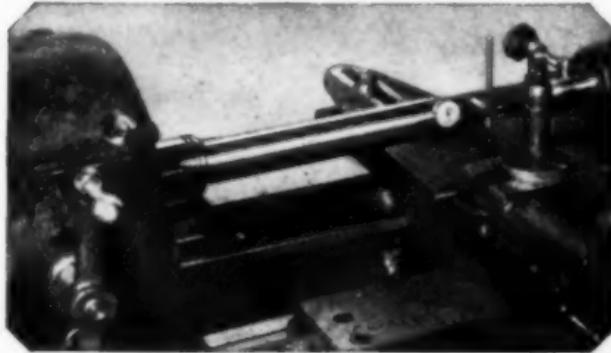
RADIALS

SHAPERS

Accuracy!

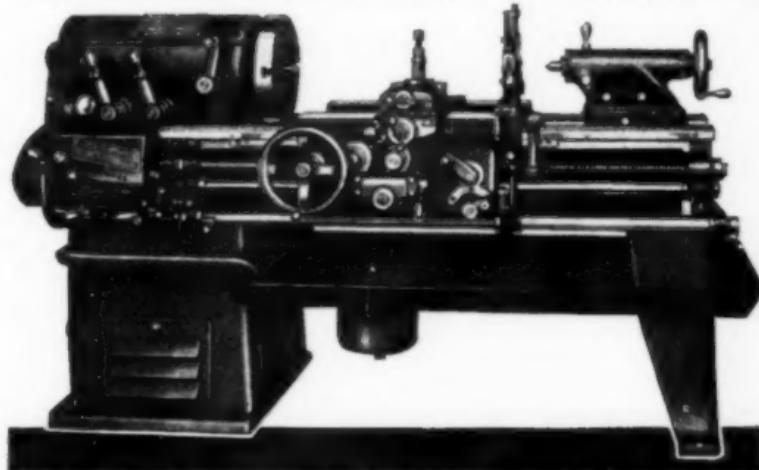
unexcelled—

NEW MODEL REED-PRENTICE Sliding Gear Head Lathe

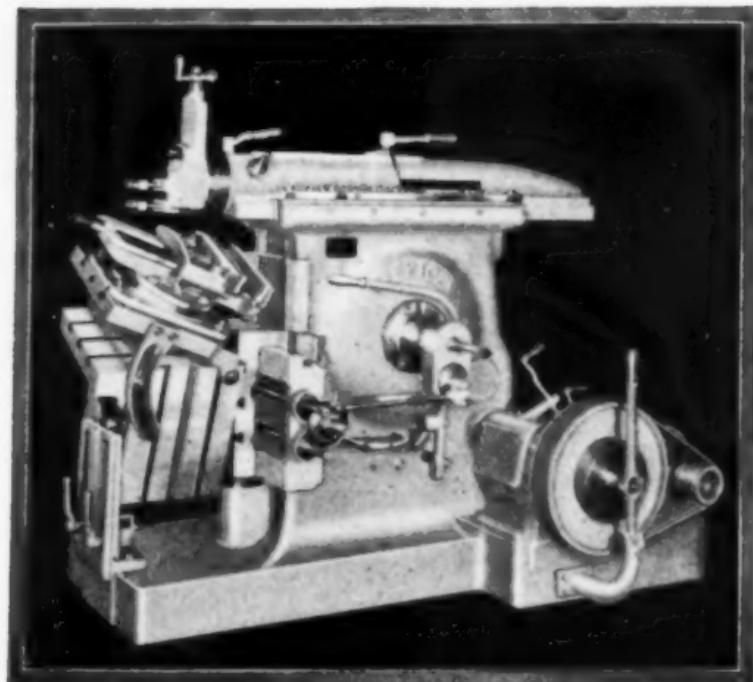


Spindle alignment—12⁸ bar. .0005 up or down, in or out.
Spindle run out at end 12⁸ bar within .001.

REED-PRENTICE CORP., Worcester, Mass.



STEPTOE SHAPERS



Texrope Motor Drive—Guards not shown

SPEED—ACCURACY—POWER

STEPTOE Shapers have been built since 1845—and years of experience have taught what is necessary in building a good machine, one that will meet the three leading demands of today—SPEED, ACCURACY and POWER. Many time-saving features are incorporated, one of the most important being Centralized Control. Levers for starting, stopping, speed control, feed changes, ram and stroke adjustment—are all reached by the operator without leaving his working position.

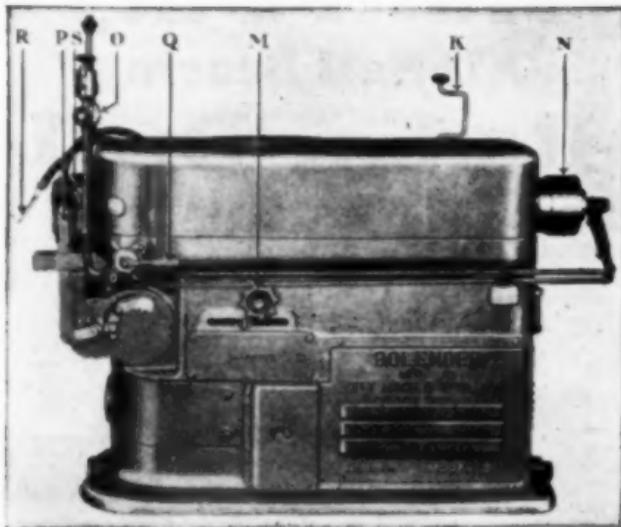
Timken Bearing Equipped Throughout

Adequate bearings promote efficiency and prolong the life of any machine. The whole drive of STEPTOE Shapers is through Timken Tapered Roller Bearings, providing for accuracy, durability and operating economy. STEPTOE Shapers are made in 14", 16", 20" and 24" sizes, single and back geared.

Write Us Today for Complete Details

Western Machine Tool Works
Holland, Michigan, U. S. A.

The New
Model **No. 2 Bolender**
Gear Burnisher



For A Wide Range of Work

THE NEW BOLENDER No. 2 has a large capacity, handling gears up to 14" in diameter, and larger by a slight change in design. Gears lie in a horizontal position—no danger of overhang or unevenness in pressure. Air is utilized for burnishing pressure and is variable.

The BOLENDER provides a proven, satisfactory, fully automatic burnishing cycle. Gears rotate by electrical control under specified pressure a predetermined number of revolutions in one direction, are automatically reversed and rotate an equal number of revolutions in the opposite direction, then automatically stopped. The number of revolutions can be varied to meet your requirements. Timken and Hyatt bearing equipped—automatic lubrication. A dial indicator gives operator constant check on work.

Write for Complete Detailed Description and Price

CITY MACHINE & TOOL WORKS

GEAR GRINDING CHUCKS GEAR CHAMFERING MACHINES GEAR BURNISHING MACHINES

3 NORTH JUNE ST.



DAYTON, OHIO

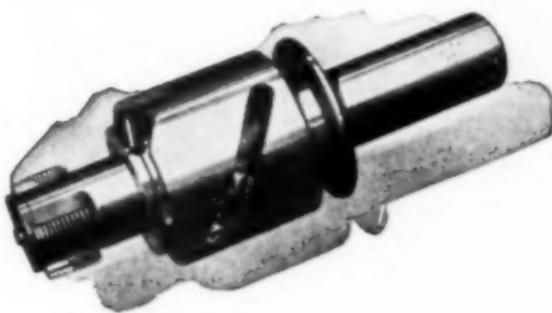
Our Latest Type Multi-Duty All Ball Bearing Radial Drill



Sizes 3 to 8 Ft.

The Dreses Machine Tool Co.
CINCINNATI, OHIO

NAMCO TAPS & DIES.



PROFIT..?

Maybe it isn't the fault of the operator, or the machine.

Maybe—you haven't been using NAMCO Collapsing Taps.

Send for the New Bulletin TDB-3002

The National Acme Co.

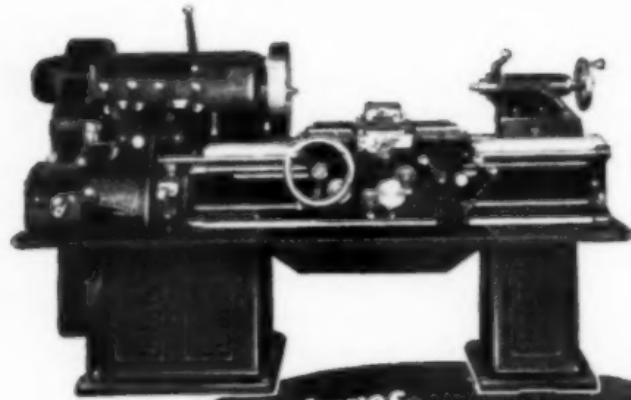
Cleveland, O.

New York City



Windsor, Vt.

Detroit—Chicago



**New Design-New Features—
New Standard of Precision
Monarch's NEW Model "C" Tool-Room Lathe**

Monarch's newest contribution to industry is the model C Helical-gear Timkenized Lathe. Incorporating many new features, it sets new standards of precision and offers many advantages as a tool room lathe. Here are five of its unusual features:

- 1—Timkenized quick-change gear box provides for 60 feed and thread changes.
- 2—Leadscrew reverse mechanism, running in oil, is an integral part of headstock and operated from the apron.
- 3—Built-in relieving attachment—relieves work up to 8" in diameter—internal, external, angular or spiral.
- 4—Smooth quiet, worm-drive in the apron, running in oil, instead of the bevel gears commonly employed.
- 5—New Monarch Standardized Flanged Spindle Nose.

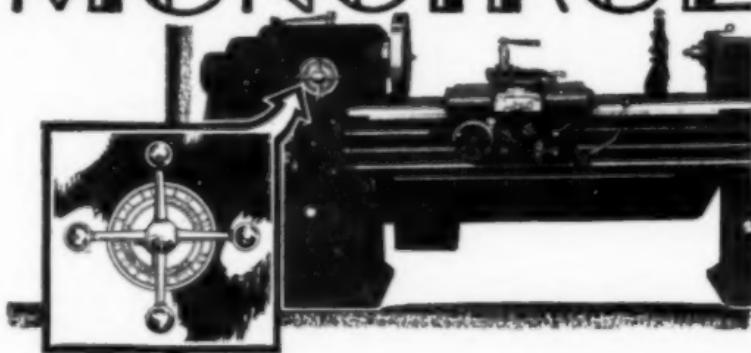
Write for Model "C" Bulletin

**The Monarch Machine Tool Co., - Sidney, Ohio
New York Office: 857 Graybar Bldg.**

Monarch Lathes

*Helical Gears - Timken Bearings
SMOOTHER..QUIETER..MORE POWERFUL*

MONOTROL



THE Monotrol One Lever Speed Control—easily operated without taking the eyes from the work—is but one prominent feature of this Sidney lathe.

Herringbone Gears—used only on Monotrol—assure smooth and silent motion, free from wear and, with Timken Bearings located at strategic points, make for increased efficiency.

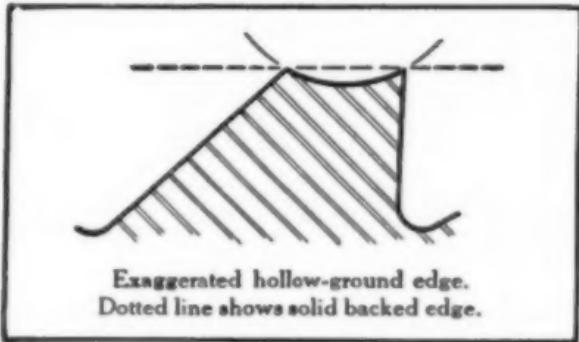
Have you investigated Monotrol? . . . you have never seen a more rigidly constructed lathe.

The multitude of features that are the secret of Monotrol's greater production ability are all described in a new bulletin, just off the press.

Write for it today

The Sidney Machine Tool Co.
SIDNEY, OHIO

Cutting Tools Last Longer-- Cut Better—When Properly Ground



Exaggerated hollow-ground edge.
Dotted line shows solid backed edge.

OESTERLEIN Grinders produce a solid backed cutting edge that has double the life of any hollow one. The No. 3 Grinder shown in illustration, besides being intended for cutter and tool grinding, has water supply and automatic table traverse for cylindrical grinding. The No. 2 Grinder is without these features, being for sharpening operations only. Both are well protected from emery dust, have automatic lubrication and a host of other advantages that have lifted tool room grinding to a new level of efficiency and profit.



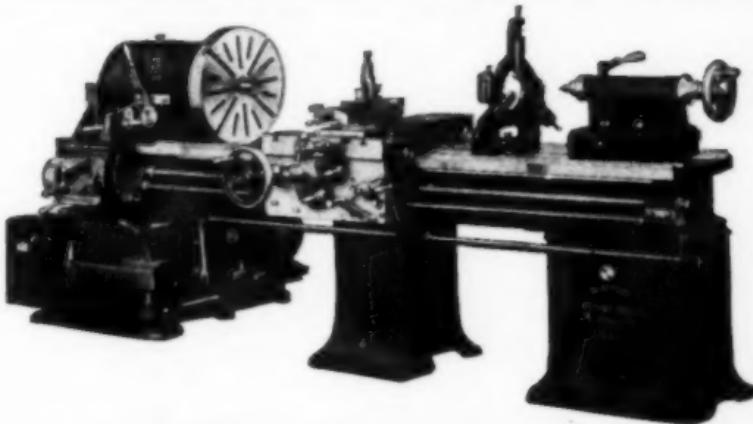
Send for new booklet illustrating advantages of these machines

The Oesterlein Machine Company
CINCINNATI, OHIO

OESTERLEIN
OHIO
MILLING
GRINDING DRILLING
EQUIPMENT

BRADFORD

"All Geared" LATHES



A Guarantee of Low Turning Costs

WHETHER you wish to turn a few pieces or a thousand, the job will show a profit when you use a BRADFORD. It not only has the productive capacity for profitable manufacturing, but a rigidity and resistance to spring that enables it to hold close limits while taking the heaviest cuts. Use modern cutting tools without danger of chatter or vibration. Made in sizes from 14" to 48" in both cone and geared types.

Write for Illustrated Folder

Bradford Unit Type Drilling and Tapping Heads



Self-contained, motor drive units, designed for one or more heads to be built into one unit *at any angle from horizontal to vertical*. Spindle speeds from 75 to 2000 R. P. M. For single or multiple spindle drilling and tapping.

Illustrated Folder on Request

The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

The Open-Side Becomes A General Utility Machine Tool

CLEVELAND OPEN SIDE PLANER

From a special application machine to a general all purpose planer sums up in a few words the broad acceptance this machine has in its field. Rigidity and adaptability for any job has come thru wide application and a thoroughly tried and proved machine on difficult work. Get all the facts. Write for complete data. No obligation.

THE CLEVELAND PLANER COMPANY

Established 1900

3148 Superior Ave., Cleveland, Ohio

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Over

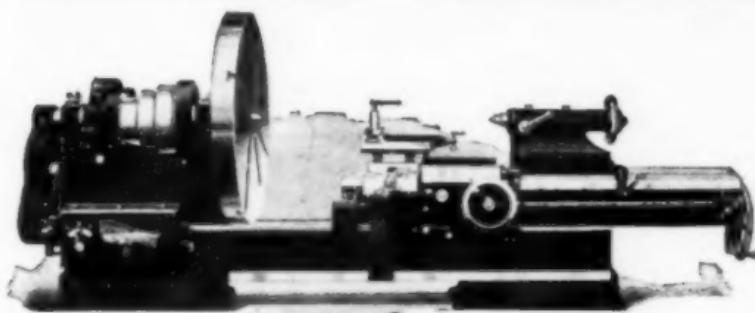
1100

Installations

26"
to
72"



The Open Side Planer with the Column
Base Cast Integral with its Closed Top Bed.



SERIES G 22/40, 24/48 and 28/50 EXTENSION BED GAP LATHE

A modern lathe suitable for a large range and variety of work; in fact, there is really no limit within reason to the work that can be done on this type of gap lathe. A lathe at all times ready for any job, large or small.

Especially Adapted For:

**Coal Mines, Railroad Shops, Steel Mills,
Public Service Corporations, Shipbuild-
ing Yards, Paper Mills, Oil Refineries
and all Shops where General Repair
Work is Being Done.**

Furnished in belt driven or motor driven type
with all geared drive head.

Weight of 10¹ Lathe—8500 lbs.

Write for Prices and Information

The RAHN-LARMON CO.
2943 Spring Grove Ave., Cincinnati, Ohio

NUT SLOTTING MACHINE



No. 2

Produces 3000 completely slotted nuts an hour without burrs.

Hexagon sizes: $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, $\frac{15}{16}$.
No. 3 Machine used for large nuts.

Detailed Description Mailed on Request

PELLOW MACHINE COMPANY
6527 Epworth Blvd., Detroit, Mich.

Save Time and Taps

with a
**GRAND
RAPIDS
TAP
GRINDER**

TESTS have proven that taps ground on a Grand Rapids Tap Grinder will cut with *less than half the power* required for hand ground taps—even when hand grinding is done by the very best mechanics. The elimination of that double strain saves many taps from the scrap heap. And tests also show that taps ground on this machine stay sharp for *several times as long* as the hand ground ones.



No. 12

Capacity
No. 6 to 3"
Taps

Wouldn't You Like To—

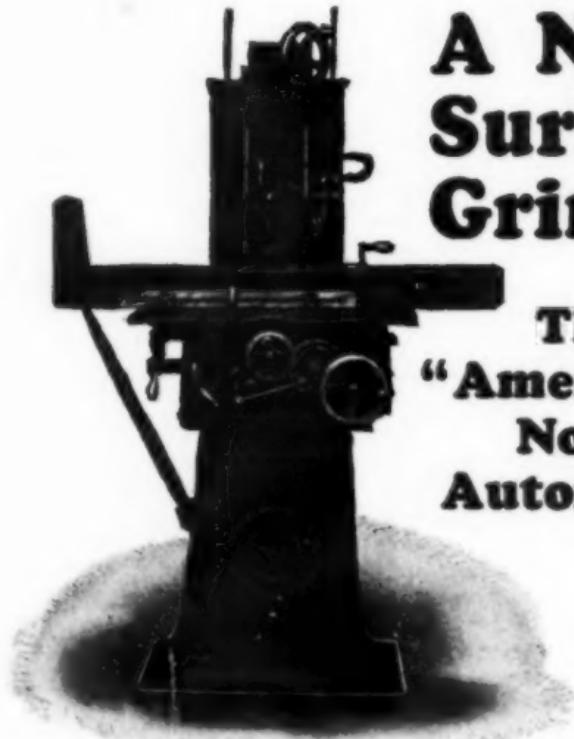
Eliminate the breakage arising from imperfect grinding—Save the waste which results from excessive and too frequent grinding—Have your taps cut with about half the power usually required—Save half the time now spent in tap grinding—Have your taps stay sharp over twice as long—Eliminate torn and stripped threads—Have your tapped holes and threads just right—Then use the *Grand Rapids*!

*An illustrated booklet giving complete details and information
that will save you many dollars each year on
tapping is yours for the asking*

GAILLMIEYER AND LIVINGSTON CO.

342 Straight Ave., S. W.,

Grand Rapids, Mich.



A NEW Surface Grinder

The
"American"
No. 2
Automatic

Meeting TODAY'S Demands

The "American" No. 2 Automatic Surface Grinder is a thoroughly new type, designed to meet the changed conditions and demands of modern shop practice. Of unusually heavy design, it is ideal for grinding and finishing dies, punches, gauges and work of similar nature.

Its general construction, consisting of new and original features, makes it unequalled as a rapid work producer. Rigid box construction encloses all belts, assuring safety without unsightly guards. All slides and working surfaces are covered, protecting them from dirt and grit. Working parts are easily accessible.

Send for circular describing the many features in detail

American Machine Tool Co.
HACKETTSTOWN, N. J., U. S. A.

Get *YOUR* Copy!!



Here's a NEW, ENLARGED edition of a booklet full of practical grinding data.

TEAR OUT THIS PAGE and MAIL IT!

No Obligation, Whatever.

Name _____ Title _____

Firm _____

Address _____

City _____ State _____

Gardner Machine Company

Near Wheeler Ave., Beloit Wis., U. S. A.

Threading 1200 pieces per Hour

These brass wing
screws shown are
being threaded on
our



Standard High Speed Tapping Machine



*Let us show you what can
be done on your work*

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

Hendrie & Bolhoff	Denver
F. E. Satterlee Company	Minneapolis
Smith Booth Usher Co.	Los Angeles
Herberts-Moore Machinery Co., San Francisco	Toronto
F. F. Barber Machinery Co.	

LELAND - GIFFORD

A 60,000 r. p. m. GRINDER

that reduces lapping to precision grinding



C-2, 60,000 R. P. M. Pneumatic Turbine

This 60,000 r. p. m. grinder with tool post holder is also mounted to internal machines. It has the proper speed to give wheels of very small diameter their maximum cutting capacity and produces work of extreme accuracy. Slow lapping operations are often eliminated by the exceptional trueness and accuracy of this unit.

Onsrud Pneumatic Turbines constitute the Ideal High Speed Drive—their principle involves no other wearing parts but bearings. These are kept cold by the exhaust air expanding within the turbine, which contributes to their unusually long life. The construction of the unit is a natural protection against dust and grit entering the bearings.

Onsrud Pneumatic Turbines are built in sizes having speeds from 15,000 to 60,000 r. p. m. They have a wide range of utility and in addition to being used as grinders, have solved many grinding, buffing and polishing problems. *Write for bulletins.*

Onsrud Machine Works, Inc.
3906 Palmer St., Chicago, Ill.

Illinois Plain and Surface Grinder

No.
11



Send for specifications of our No. 10 Plain and Surface Grinder—a general purpose grinder.

With Hand Feed Table and Cross Slide

This machine has been designed to meet the demand of shops requiring an inexpensive grinder for surface grinding.

Special Features

Base: Box type construction with liberal bearing surface for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths. Long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, and runs in four Timken tapered roller bearings with adjustment collars to each

bearing. Also furnished with Bronze Bearings if desired.

Table and Cross Slides: Have dovetailed ways and tapered gibbs. Table working surface 24" x 6".

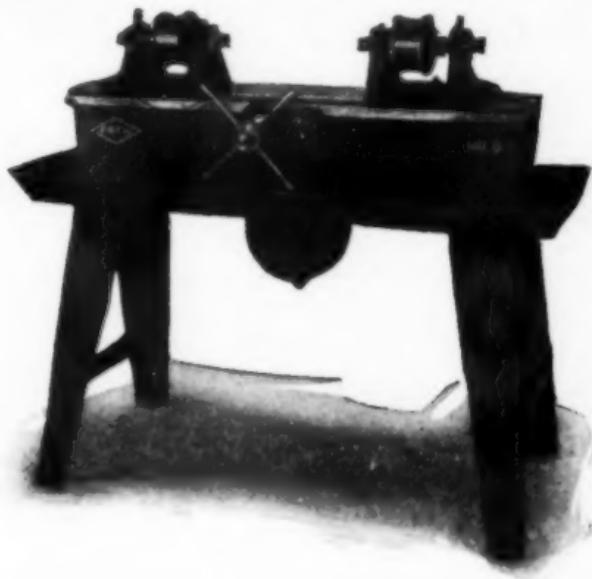
Countershaft: Ball bearing with tight and loose pulley and belt shifting devise. Loose pulley equipped with two ball bearings.

Lubrications: Alemite system for spindle and countershaft.

Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

SPEEDY-ACCURATE



FREW No. 0 Duplex Horizontal Drill

DRILLING, counterboring, turning and hollow boring are some of the operations this machine performs in record time. Facing can be done in practically half the time required by single spindle methods and in perfect alignment. The FREW simultaneous machines work from opposite directions on the same axis. Numerous types of fixtures can be mounted on the bed to be operated by air, hand clamp or foot treadle spring type.

Look at these Features !

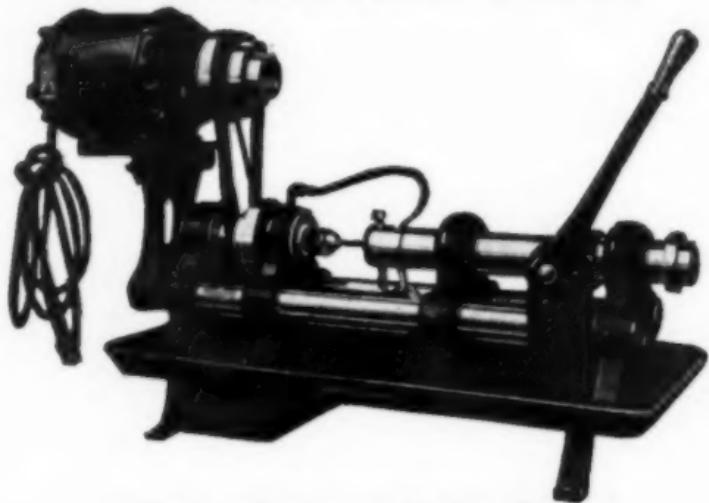
Timken tapered roller bearings or ball bearings; stops regulating depth to which tool goes; felt wipers for clearing chips; various methods of providing motion to heads, belt or individual motor drive, etc.

Write for Complete Description and Low Price

THE FREW MACHINE CO.
136 West Venango St., **PHILADELPHIA, PA.**

*We also manufacture: Tapping Machines, Profiling Machines,
Cam Milling Machines, Wood Working and Special Machines.*

Production Drilling Increased 50 to 100%



WHIRLWIND Horizontal Drilling Machines

YOU will be surprised to see how much faster you can do production drilling on a WHIRLWIND. Its HORIZONTAL construction permits faster loading and the finished work is automatically ejected. Shops using it, the country over, have increased their production from 50 to 100% over vertical drill press methods.

Quickly Pays for Itself

The first cost of a WHIRLWIND is so low that the increased production quickly pays for it. Operating expense is lowered too, as drill breakage and resharpening are reduced to a minimum. The machine is substantially built and unconditionally guaranteed.

Send one of your drilling problems to us and we'll tell you how many pieces per hour the WHIRLWIND will drill—no obligation.

WHIRLWIND PRODUCTS CO.
1737 Ludlow Ave., Indianapolis, Ind.

Production Accuracy at low operating cost

Precision Built Drilling Units



**TIMKEN
ROLLER
BEARINGS**

Ready for
the Job!

15-inch Sliding Head Sensitive Drill

Mounted on Box Type
Column with
Oil Groove Table

Spindle Speeds—
400, 850, 1750 R. P. M.
Capacity 0 to $\frac{1}{2}$ ".

This drill can be furnished
in speeds ranging from
400 to 10,000 R. P. M.

SPECIFICATIONS—1 Spindle

Overhang	7 $\frac{1}{2}$ "
Vertical adjustment of sliding head	9 $\frac{1}{2}$ "
Traverse of feed rack	3 $\frac{1}{4}$ "
Center of spindle to column at gap	8 $\frac{1}{2}$ "
Center of spindle to planed column face	7 $\frac{1}{2}$ "
Distance between spindle centers	
Size of Table	16" x 20"
Size of base of lower column	23" x 18"
Maximum Distance from spindle to table	33"
Width of table bearing on column	4"
Height to upper edge of top bearing cap	7 $\frac{3}{4}$ "
Net wt. mounted on base and pedestal	505 lbs.
Crated weight	613 lbs.

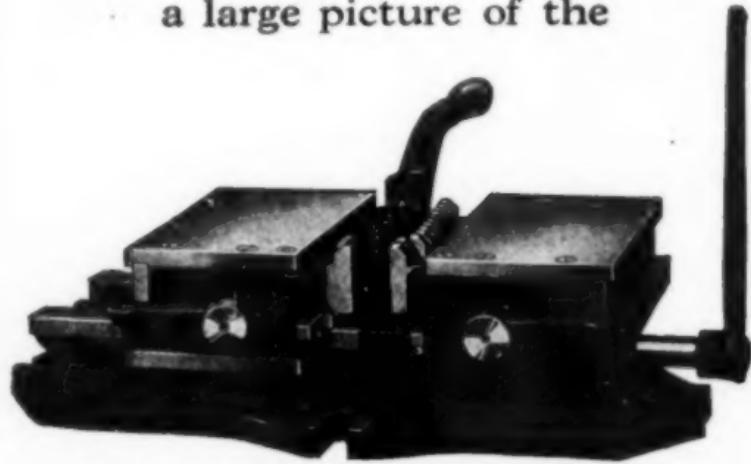
Consult Our Engineering Department on Your
Drilling Problems whether Regular or Special

Canedy - Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

ONE LOOK AT A GOOD PICTURE TELLS MORE THAN WORDS

We will be glad to GIVE YOU
a large picture of the



Berjo

Machine and Bench Vise

that shows how simple and effective its gripping action is.

IT GRIPS THOROLY ANY IRREGULAR SHAPE.

GET THE PICTURE . . . WRITE NOW.

**The Avey Drilling Machine Co.
CINCINNATI, OHIO**

\$

GET

THE

avey

\$

WATCH
YOUR
OUTPUT
INCREASE



WATCH
YOUR
PROFIT
GROW

\$

THE AVEY DRILLING
MACHINE CO.
CINCINNATI
OHIO

\$

THE SMALLEST, FASTEST,

The KIPP AIR GRINDER

EVERY machinist, every tool maker, every die maker—in fact, everybody who works with metal in irregular shapes—will want one of these new tools on his bench.

Mile-A-Minute Speed

It's a little, high speed grinder, not much bigger than your finger, only $7\frac{1}{4}$ inches long. It handles as easily as a fountain pen. But it travels at a mile-a-minute speed with a half-inch wheel. And it really grinds instead of just rubbing.



Works on Shop Air-Pressure

It touches off tool steel as neatly, smoothly and rapidly as a big wheel grinder. It gets into the inaccessible places to blend radii. It does in minutes work that otherwise requires hours of stoning on parts that require touching-up after hardening. And all it needs is ordinary shop air pressure. Specify Model AG for pressures 50 to 100 pounds. Specify model AGL for pressures 20 to 50 pounds.

air
Kipp Grinder

HANDIEST GRINDER....

an absolutely **NEW TOOL**

It's an absolutely new tool—you've never seen anything like it. It doesn't seem possible that any small grinder could be built to run so smoothly, so swiftly, so quietly, yet with plenty of power to hold its speed while grinding.

1/4 Actual Size



Price
\$25.00
Complete

You'll never believe it till you see it. That's why we're offering it on a ten day free trial basis to all firms with a satisfactory credit rating. It is priced at \$25.00 complete, with four grinding wheels, hose and connections. Clip the order blank below and attach to your business stationery, or use your order blank.

MADISON-KIPP CORPORATION
217 Waubesa Street MADISON, WIS.
GRINDER DIVISION

Manufacturers of Air Grinders, Fresh Oil Systems, Mechanical Lubricators, Die Casting Machines, Die Casting Dies.

ORDER BLANK

MADISON-KIPP CORPORATION
217 Waubesa Street, Madison, Wisconsin

Order No.

Send one Kipp Air Grinder at \$25.00, net 30 days, postpaid. If it is not satisfactory we will return invoice and grinder on or before the 10th day after date of invoice. [Note: If you prefer to use your regular order form please attach this coupon to it and copy the above return arrangement on your order for a complete record.]

Ship to Address

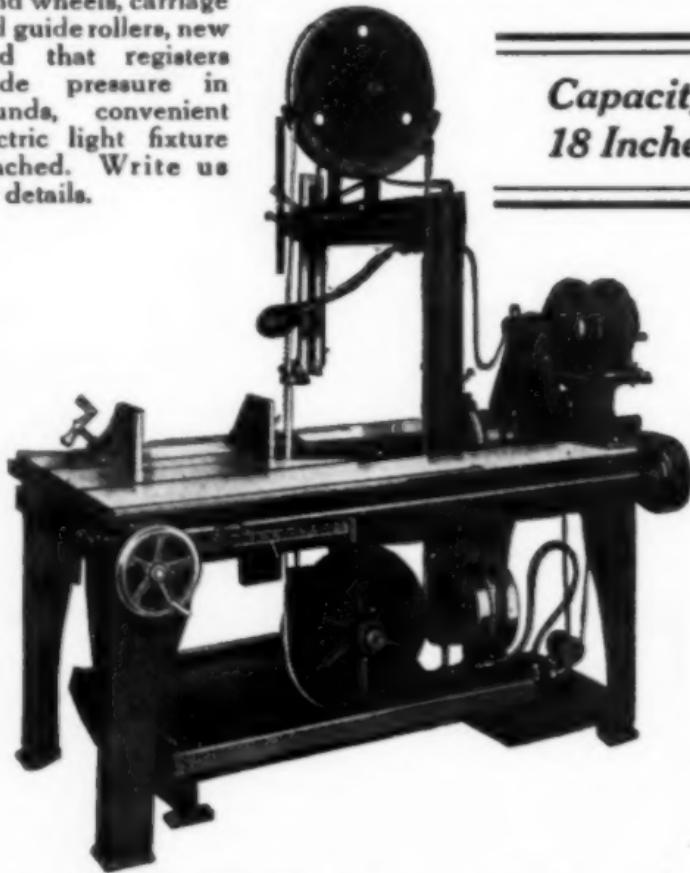
City State

Signed Title

MARVEL

The Marvel No. 8 Metal Band Saw is a standard tool in hundreds of the best shops. It cuts off square or any angle right or left to 45 degrees, has big roomy bed or work table, three cutting speeds, quick acting vise, ball bearing band wheels, carriage and guide rollers, new feed that registers blade pressure in pounds, convenient electric light fixture attached. Write us for details.

**Capacity
18 Inches**



ARMSTRONG - BLUM
341 N. Francisco Ave.,

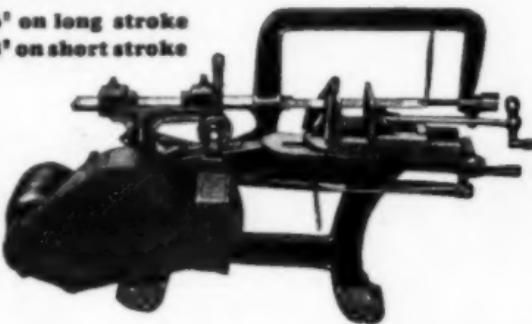
MARVEL

Draw-Cut Hack Saw No. 2

Adjustable Stroke

CAPACITY $\left\{ \begin{array}{l} 6\frac{1}{2}'' \text{ on long stroke} \\ 8\frac{1}{2}'' \text{ on short stroke} \end{array} \right.$

With
Swivel
Vise



A Complete Motor Driven Hack Saw at a very attractive price. It's a Strong, Durable, Dependable Saw, and can be furnished either with motor for power circuit for stationary use or with motor for lighting circuit so it can run from any light socket in your shop. Motor is connected with driving shaft by silent chain, sprockets, and intermediate cut gears enclosed in cast iron housing and guard and run in oil. Write us. Let us know the current of your power circuit, or lighting circuit. Get the full details from us of this Complete Motor Driven Saw. Can also be furnished Belt Driven.

ASK ABOUT MARVEL
High-Speed-Edge Hack Saw Blades

MANUFACTURING CO.
CHICAGO, ILLINOIS



These feeds are made in six models, with or without built-in straightener for light or heavy stocks, to meet all conditions.

Fast
Accurate
Economical

NOC-OUT ROLL FEEDS

Why use slow, costly hand feed methods when the NOC-OUT Reversible Feed offers you the many advantages of automatic feeding? It keeps production at a steady level, assures maximum output of each press—by eliminating the human element and its costly delays.

Automatically feeds any stock from coils in lengths of from 0 to 30 inches per stroke of press. Mounts on bolster plate, either right side, left side or front, requires no alteration of press. Feeds from right to left, left to right, or front to back as conditions may require.

Write TODAY for a copy of Bulletin "H" describing the various NOC-OUT Models and Our Free Trial Offer.



Wittek Mfg. Co.

4309 W. 24th Place

Dept. "H" CHICAGO, ILL.

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

Made in three
sizes of single
and multiple
spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

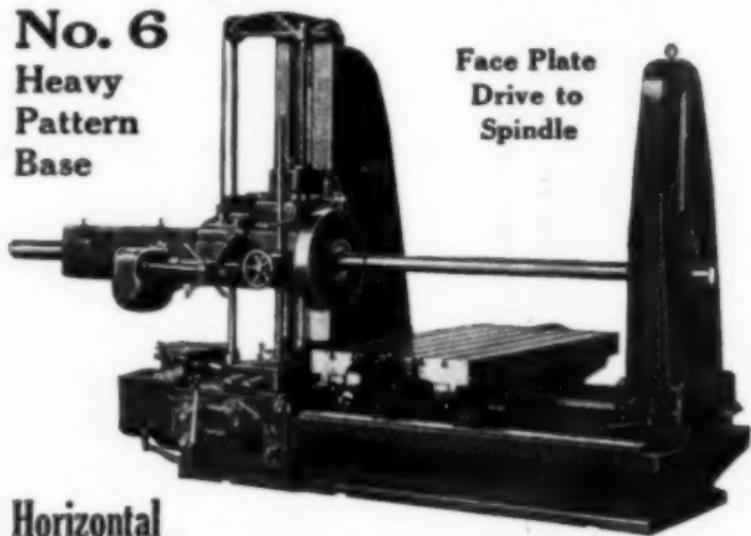
The Foote-Burt Company, Cleveland, O.

FOOTBURT

The New Improved DEFIANCE

No. 6

Heavy
Pattern
Base



Horizontal Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery

The LEHMANN

An EXCEPTIONAL Engine Lathe



*"Built for
Endurance"*

For HEAVY DUTY and ACCURACY

LEHMANN LATHES are recognized as exceptional in design, construction and performance—meeting a wide variety of requirements and giving splendid service. Their design includes essential points prescribed by modern shop practice, together with many features of our own. These features are not radical departures, but modifications and practical applications of time-tried devices, adding to effectiveness and ease of manipulation. Every lathe that leaves our shop is thoroughly tested and guaranteed.

A Brief Outline of Some of The Features:

16 Speed Headstock: Running in oil—simplicity of construction—only 10 gears required—all gears heat-treated or hardened—all shafts, except spindle, mounted on ball bearings.

Spindle: Alloy steel—hardened and ground—patented double spindle nose.

Carriage: Wide deep bridge—wipers and oil reservoir for ways.

Tailstock Spindle: has improved locking device.

Bed: Deep and wide—braced by large cross-ribs—chilled ways.

Apron Control of Clutch: for forward and reverse—similar handle at headstock end.

Apron: Double plate type—removable front plate—central oiling system.

Rod and Screw Shift: Positive and safe.

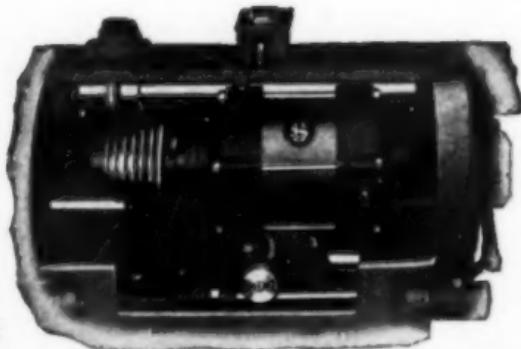
Patented and Quick Change: Wide range—central oiling system.

Improved Friction Clutch: Forward and reverse—running in oil—self adjusting.

Geared Head and Cone Head—Double Back Geared
Made in Sizes from 16" to 24"

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LEHMANN MACHINE CO.
3571 CHOUTEAU AVE., **ST. LOUIS, MO.**



This

Splendid Drive

Obtainable Only in U. S.
Buffers and Grinders

THE wonderful, new advantages of buffing, polishing or grinding by means of the Gibbs V-Disc Transmission of GRAPHITIZED MICARTA are possible only with machines made by The United States Electrical Tool Co.—this feature is patented, (No. 1,477,052.)

In buffing and polishing, four different wheel speeds from 2,000 to 3,000 r. p. m. are available. In grinding, you can maintain a constant wheel surface speed regardless of wheel wear, clear down

to the flanges. In high speed snagging with high speed or vitrified wheels, you can hold to a speed of approximately 9,000 surface feet per minute.

These machines have the further advantage of operating on alternating current. In addition, the absence of slip or backlash with this drive, its convenience, the simplicity and negligible cost of

replacement, the high efficiency, quiet operation and ability to withstand hard usage make this drive highly successful.



Ask your jobber or write us today

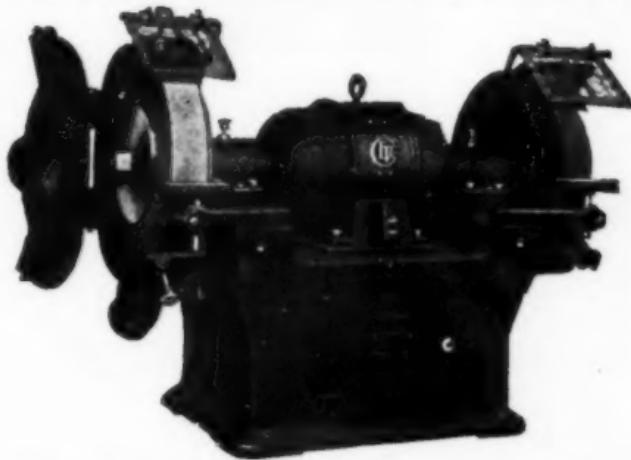
The United States Electrical Tool Co.

Oldest Builders of Electric Drills and Grinders in the World

2461 West Sixth Street, Cincinnati, Ohio, U. S. A.

Canadian Division—MAPLE LEAF ELECTRIC TOOLS, Ltd.—Toronto

The Cincinnati
HIGH SPEED



Three sizes
5, 7½ and
10 H. P.

Heavy Duty—Roller Bearing FLOOR GRINDER

THIS Grinder fills a profitable corner in any shop where production demands call for speedy, accurate, clean cut work. You can be sure of dependable performance every day that this grinder is on the job—100% satisfaction when the job is done. It *belongs* in your shop.

BUILDERS OF:

*Ball Bearing
Electric Drills
Screw Drivers
Nut Setters
Tappers
Valve Grinders
Tool Post Grinders
Floor Buffers
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Floor Grinders*

Cost Saving Features:

Built to carry ring wheels, 12 inch bore, effecting a big saving on initial cost as well as on discarded wheel losses. Timken Tapered Roller Bearings protected from grit and adjustable to wear—approved by the Timken Co.; adjustable wheel guards, eye shields, push button control—these and many other features are yours in THE CINCINNATI.

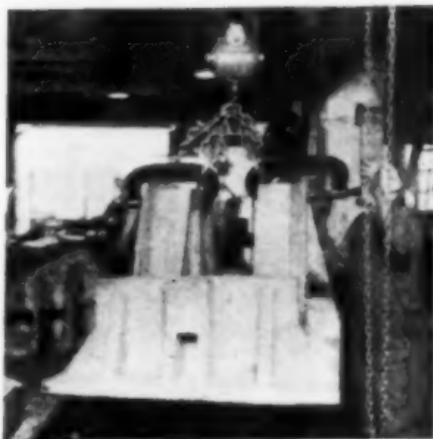
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**THE CINCINNATI
ELECTRICAL TOOL CO.**
2700 Madison Road, Cincinnati, Ohio

You can count on a tool that bears the
ARM-AND-HAMMER TRADE MARK



**Dependable
under the
greatest
strains**



ARMSTRONG "C" Clamps have almost unbelievable strength. They are shown here in a Toledo plant where they are used to lift and carry tremendous steel castings—automobile body dies. Day after day they stand up under this terrific strain. The slightest give, the least spread, under this tremendous pull would spell disaster. It is because ARMSTRONG Clamps will not give or spread that they are selected for this work. They can be depended on—always.



**ARMSTRONG
"C" CLAMPS**

Forged from steel
that gives extra
stiffness and
strength. Alloy
Steel screws. All
practical types and
sizes.

*Write today for Catalog B-27 which
shows, describes and gives prices
of all ARMSTRONG Tools.*

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"The Tool Holder People"
324 N. Francisco Ave. Chicago, U. S. A.

ARMSTRONG

TRADE MARK REG. IN U. S. PAT. OFFICE

Taylor & Fenn Belt Driven
No. 12 Spring Press



**UNIFORM BLOW
SPRING PRESSES**

Are made in
three sizes,
with either
single or
double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.

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Punches—Shears—Bending Rolls



Initial Type

Sheet and Plate Bending Rolls

These Bending Rolls are built to fill the demand for strong, efficient and quick acting rolls for forming sheets and plates into cylindrical shapes. Adapted to the requirements of sheet metal and light plate working parts, and indispensable in any plant having a metal working department.

The modern design of this type makes it possible for the operator to curve plates completely to the edge, thus getting away from the undesirable flat near the edge of the sheet.

Strong, compact, easy to operate, conservatively rated and amply back geared to require the minimum of power.

Made in Initial Type, as shown above, or in Pyramid Type. We also make various types and styles of Punches and Shears. Write for complete descriptions.

Hendley & Whittemore Co.
100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS

“SUPERIOR” Two-Spindle Hand Millers



One Plant Alone
Uses Fifty—
WHY?

Because they will handle two operations simultaneously on a great variety of work. Spindles are independently adjustable vertically.

Slides move freely without cramping, since all guiding surfaces are long in proportion to their width. All slidingmembers are fitted with adjustable gibs, and can be securely clamped without disturbing adjustment.

Especially adapted to cut step-cut piston rings, as it will handle both sides at once; also for splitting crankshafts and connecting rod bearings, both sides of which are also handled at once. Many "Superiors" are at work on such operations.

Furnished for direct drive from main shaft (friction countershaft built integral with machine) or for motor drive.

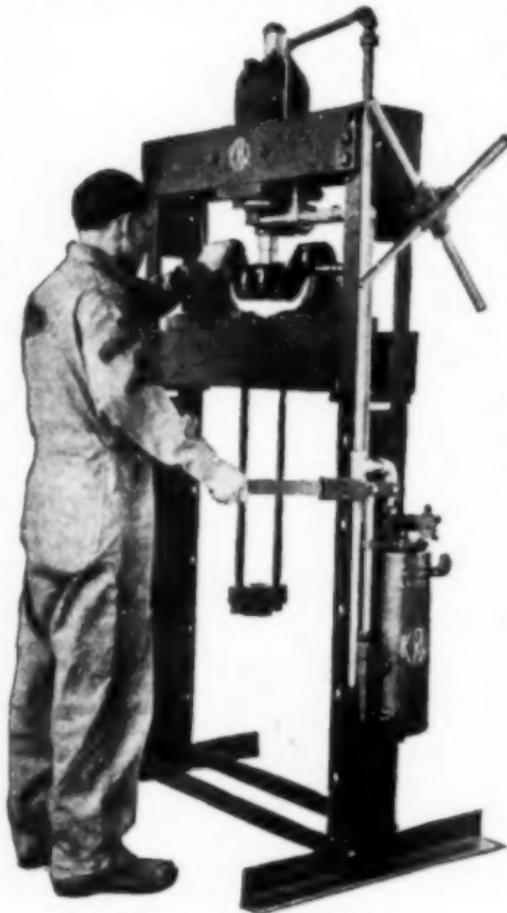
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We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.
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Many New Improvements for Perfection of Operation and
Convenience Gives You All Around Efficiency at Low Cost



A new double acting piston fills cylinder with oil as the ram is brought down by means of the hand wheel of unique design — sliding handles which pull out to the ends greatly increase the leverage.

Side members slotted to permit long bars to pass thru.

35 tons Capacity

Direct to You

\$115.00

F. O. B. Factory

Complete with all
attachments as shown

K. R. WILSON

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Export Department: 126 Liberty St., New York City

One Man Handles All Dies



Type BB
Table 20"x36"

When you are
equipped with a

1-Man 4-Post Screw Press

The perfect alignment
between punch
and die — the
ease with which 80 tons
pressure can be applied
and the supreme rigidity
of this machine, enable
one man to do more, bet-
ter and speedier work
than two men can do
on any other type of
press.

*Made in 25 ton
size also*

Surface Grinder

A substantially built machine
that is powerful, rigid and accurate.
Equipped with graduated dials and
non-vibrating wheel.

Details and Prices on request

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AND TOOL CO.**

Department A

GRAND RAPIDS,

MICHIGAN





Here's The Key...

to the solution of the small machine shop's coolant problems — a complete unit, including pump, motor and four-gallon reservoir. Also obtainable with eleven gallon tank on casters. For particulars see the 1930 Catalog of GUSHER Coolant Pumps.

THE
RUTHMAN
MACHINERY COMPANY

528 East Front Street
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**A NEW
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for the
Machine
Shop
and
Tool
Room**

Made in
two sizes
21" and 33"

Low in
Price.

40 tons pressure

**Makes all Bending, Forcing and
Straightening Jobs Easy**

Quickly pays for itself in time saved.

Ideal for shearing punches in hardened dies and for trying out Blanking, Piercing and Bending Dies.

Mail coupon for bulletin describing what its 80,000 lbs. pressure will do

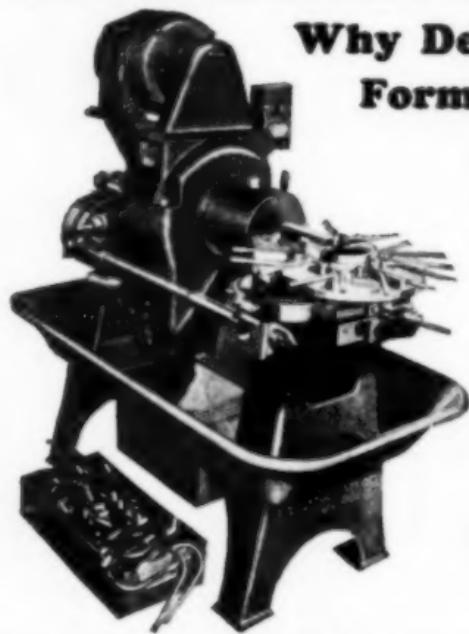
**SIMPLEX
TOOL CO.**

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**SIMPLEX
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Send bulletin describing your press and showing uses to

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**Why Delay Drilling,
Forming, Milling
and similar
Automatic
Operations
when
You Can
Thread the
Work
FASTER
on the**

RICKERT-SHAFER Automatic Threading Machine

THREADING is an operation requiring care and skill and cannot be rushed. Also, it is usually the longest operation on an automatic job. Because of this, R.-S. Automatic Threading Machines have helped many plants to make their automatics more profitable, and lowered cost per piece, by taking this operation over.

IF YOU are not thoroughly acquainted with the possibilities of this remarkable little machine, it will pay you to investigate.

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THE HAMMOND AUTOMATIC
Tapping Machines are designed
to rapidly and efficiently perform
drilling, tapping, stud, nut and screw
driving operations.



Drilling radius..... 4' 0"

Capacity $\frac{3}{4}$ " drills, $\frac{5}{8}$ " taps, $\frac{1}{2}$ " studs

Write for full information

The Hammond Manufacturing Co.
7808 Kinsman Road, Cleveland, Ohio

KMΣ

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The

KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.

Made in various sizes and types to meet every requirement. Speeds from 875 to 10,500 R. P. M.

For Snagging, Burrning, Lapping, Buffing, Polishing, Sanding, Drilling, Wire-Brushing, etc.

Non-Heating Shaft, Ball-Bearing Band-piece, Ball Bearing Motor, Universal Swivel.

Complete line of accessories: Rotary Files, Sanding Drums, Emery Wheels, Wire Brushes, Polishers, etc.

KELLER MECHANICAL ENGINEERING CORP.
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STOCKS AT

Brooklyn Cleveland Detroit Chicago St. Louis San Francisco
Builders of the Keller Automatic Die Cutting Machines
Chicago Office: 549 West Washington Blvd., Chicago, Ill., Telephone Central 1590

SAVE
\$ \$ \$ \$ \$ \$
By Using The
Luers Cutting-Off Tool

This tool is made in a great many sizes and types adapted for use on all makes of automatic screw machines, hand screw machines, and turret lathes. It pays for itself over and over again, and is being used by a great many outstanding concerns.

Will you try one in actual practice? No obligation whatever. Just designate the size and make of machine on which you wish to try our tool and the proper type will be sent to you.

*Patented and Patents Pending In
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LUERS INCORPORATED

1022 Maple St.,

Detroit, Mich.

Etchograph

Trade Mark



Patented July 8, 1918
Patent No. 1,300,160

Cut Tool Marking Time 80%

For marking iron, steel or steelite, nothing can equal the ETCHOGRAPH—the *original electric marker*. Six stages of heat allow six variations in the size of marking, an advantage no other machine can offer. No acids—no fuss—simple to operate—just connect to light socket and write as with a pencil.

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The BULL DOG

"The Drill with a BITE"

New Model—

New Features—

16 of Them!

Write for Full
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Won't
Stall—
Break—
Pull Loose



This new improved 1930 Model Drill, with SKF ball-bearings designed for rough usage, is the finest tool ever built—in fact, it's so good it's unconditionally guaranteed for a year.

1/2"
Heavy
Duty
Only
\$48

WEEK'S TRIAL OFFER

Give it a slam-bang, rough-house test for a week on the toughest job you can find. Watch it go through iron 2" per minute—through tough oak 5" thick in 30 seconds. If your dealer cannot supply—write direct to us at address below.

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Profit or Loss?

Which does your finishing department mean to you?

In either case the advantages of the Abbott Ball Burnishing Process will be quickly realized for it is the most economical method known of finishing small metal parts.

Thousands of pieces can be finished at one time, and whether yours is a large production or small the advantages are the same—good results—low cost.

Why not investigate to-day and be in a position to make a profit on to-morrow's business. Send samples of your work for an experimental burnish.

The Abbott Ball Company

"Originators of Commercial Ball Burnishing"
1043 New Britain Ave., Hartford, Conn.

Save Time and Money in Many Ways with this Handy Tool

Luma
ELECTRIC EQUIPMENT CO.
TOLEDO, OHIO

3
Tools
in
1



View of Luma Marking
and Demagnetizing hardened
steel tool in same operation.

Etches—Demagnetizes—Anneals

The LUMA is an instrument of general utility that is real shop economy, combining as it does in one compact, handy, portable tool, an electric pencil for marking hardened and ground steel, a thorough demagnetizer and a carbon point for light annealing and soldering.

It can be used for marking and demagnetizing small tools simultaneously. For demagnetizing tools or blocks too heavy to be moved, the LUMA itself can be carried and passed about the work as it weighs less than 20 pounds. Easy to use—just plug in the nearest light socket. You will be surprised at the savings it accomplishes for you.

*Write for Complete Information and Details of
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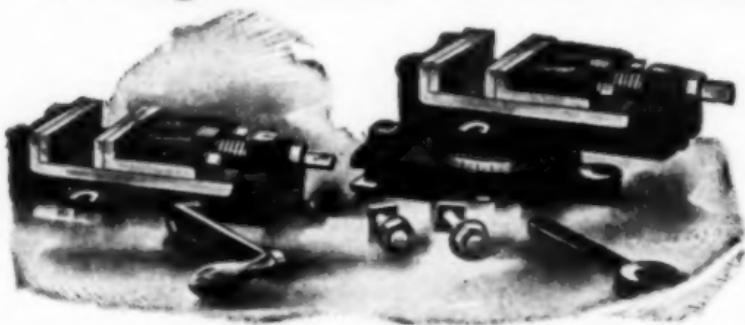
Luma Electric Equipment Co.

Main P. O. Box No. 132

Dept. H.

TOLEDO, OHIO

"Straight Line" Milling Machine Vises

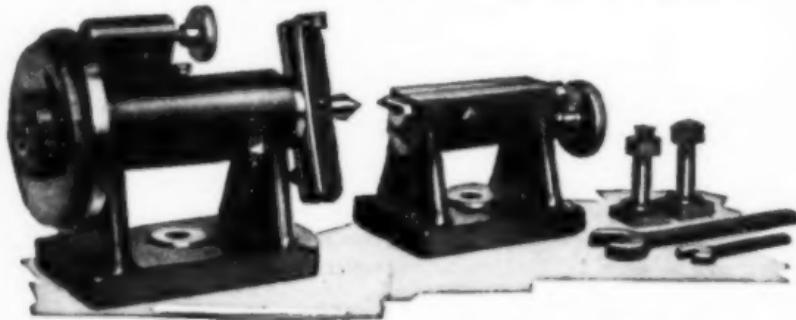


**Swivels 180° Either in a Horizontal or Vertical Plane.
STRONG—DURABLE—ACCURATE**

Made in Four Sizes

Ordered repeatedly by leading machine tool users for accurate heavy duty milling. Interchangeable parts.

Adjustable Dial Index Center



With work dogged between centers, and latch pin in, the dial can be turned to bring work in position where wanted as to relation with machine cutter or emery wheel, then bound to start indexing from such setting. Regular dial is drilled for three and four stations. Can be used for re-cutting or grinding flutes in taps and reamers or teeth in cutters.

Also Manufacturers Of

Double end horizontal drills, milling machines and attachments, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex-square milling fixtures.

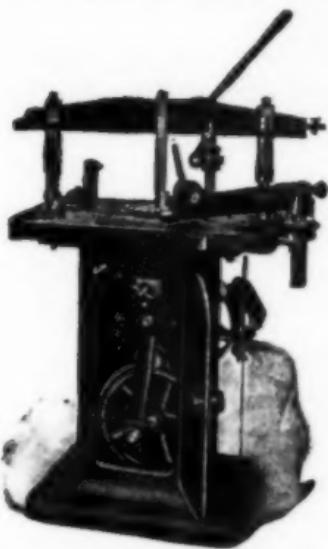
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JOHN B. STEVENS INC.

306 Hudson Street,

NEW YORK CITY

SIMPLICITY and



EASE of OPERATION

Insure
Accurate
Rapid and
Low Cost
Production
If You Use
the

No. 1 cuts from $1/16$ to 1-inch

DAVIS KEY- SEATER

THE DAVIS KEYSEATER cuts keyways in pulleys, gear blanks, crank handles, etc., and does oil grooving and slotting accurately and economically. Equally profitable on standard quantity production or on mixed runs. There are no complicated parts to get out of order, setting-up is extremely easy and operation is so simple that your youngest apprentice can handle it without any trouble. Made in two sizes.

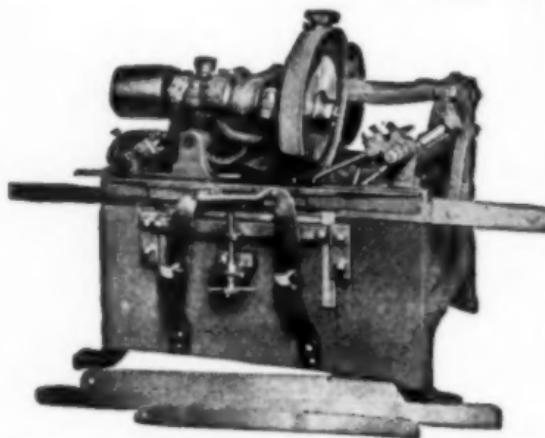
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Davis Keyseater Company
255 $\frac{1}{2}$ Mill St., Rochester, N. Y., U. S. A.

Salvages HACKS AND HARD TEMPERED METAL CUTTING BANDS

IT COSTS **2¢** *To Sharpen*
A Hack Saw **5¢** *A Band*
Saw

**THIS MACHINE WILL
REDUCE YOUR SAW PURCHASES
OVER 75%**



MAIL TO US
two saws and
we will
resharpen
them for you
FREE OF
CHARGE
showing the
work this
machine does

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THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard Tempered Band Saws, Milling, Slitting and Screw Slotting Saws and Woodworking Saws

Manufacturers of the largest line of Saw Filers made in U. S. A.

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Winterhoff MOTOR DRIVEN Portable Tools

For Economical Low Cost Machining of Small Parts

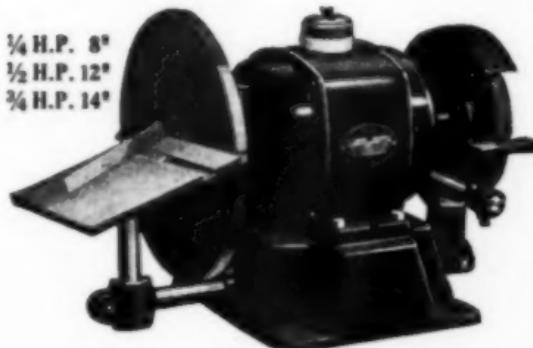
10½" Sensitive Bench Drill



No. 9 JUNIOR DRILL
0 to $\frac{3}{8}$ " Capacity

This remarkable little drill has earned a warm spot in the hearts of many production shop as well as tool room foremen. Repeat orders tell the tale. Equipped with General Electric motor, first grade standard chuck, many other exclusive features.

*Send for
Complete Descriptive
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Repulsion Induction Motors

Double End
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The most economical and accurate method of producing true surfaces in production and tool room. Discs are two-sided and reversible. Completely equipped for the job. Repeat orders tell the story.

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ECONOMY—

The J. & B. Filing and

Production
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Tools

Sawing
Machine



Type
1-AP

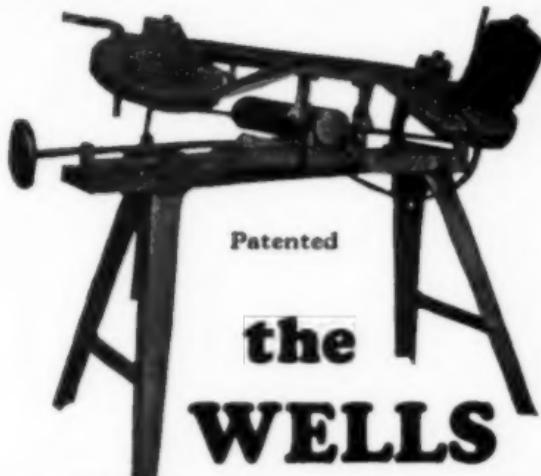
By using unskilled labor for filing that ordinarily would require a skilled mechanic and the fact that it does not require any special make of file or saw blade proves economy in labor and material.

On time in filing it saves as much as 60% and its sawing rate is fully 30% faster than that of other machines.

Details will be gladly sent you upon request showing you just how this machine not only saves you money—but will make money for you. If you write it will be $2\frac{1}{2}$ well spent.

Manufactured by

The LaPorte Machine & Tool Co., Inc.
LAPORTE, INDIANA



Patented

the
WELLS
metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, tubing, strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than $\frac{3}{16}$ "—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

**A Saw for Production, Maintenance
and General Service**

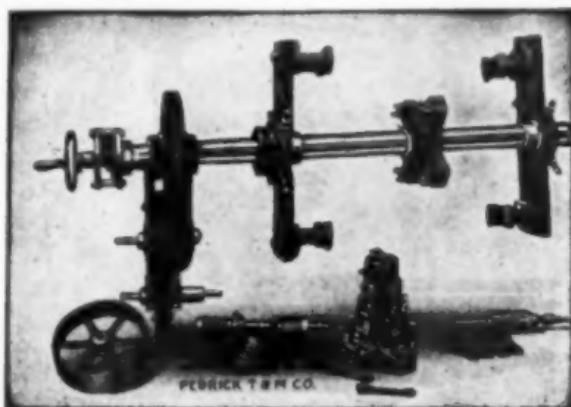
We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.
Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.

Pedrick Portable Tools



Portable Cylinder Boring Bars

For reboring in position locomotive cylinders and piston valves, cylinders of stationary engines, steam hammers, air compressors, and a wide range of other work. Often it finishes a job before it could be gotten into the shop, saving time, expense and costly delays. Its saving on work that is difficult to move is out of all proportion to its moderate cost.

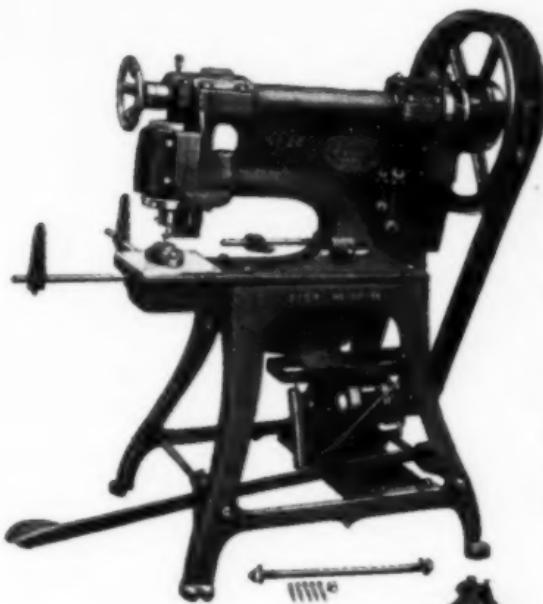
As for durability, we doubt if you can wear out a Pedrick built bar. Many machines we made 25 years ago are still in use.

We also build Floor Type Boring Machines, Crank Pin Turning Machines, Pipe Benders, Portable Milling Machines, etc.

Write for the Catalog today

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.



No. 20

For duplicating work by the use of Horse Shoe Gauges, Templet Sheets can be made to punch sheets with accuracy and speed not obtainable with any other method of punching. Capacity $\frac{1}{4}$ " hole in $\frac{1}{4}$ " iron.

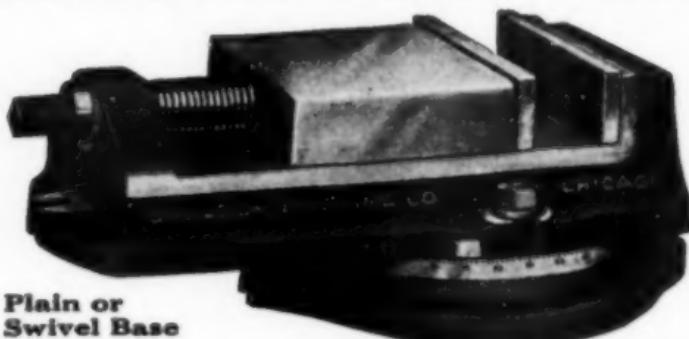
No. 19

Ball Bearing, accurately designed square slide built like a Punch Press for irregular shape dies. Easily operated balanced lever can be moved to the job with ease, saves time, one man machine, capacity $\frac{1}{4}$ " in $\frac{1}{4}$ " iron.



Excelsior Tool & Machine Co.
East St. Louis, Illinois

SHELDON MILLING MACHINE VISES



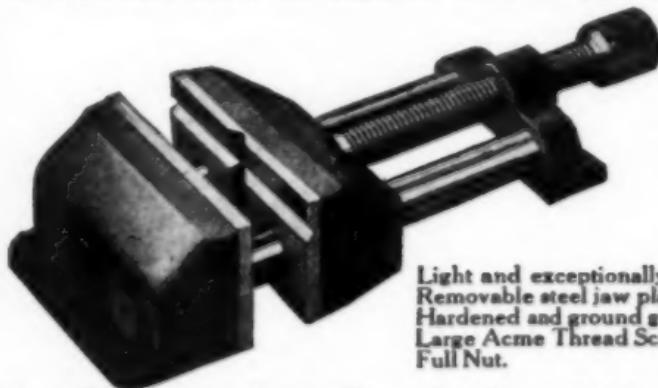
Plain or Swivel Base

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	3 $\frac{1}{2}$ "	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6 $\frac{1}{2}$ "	2"	4 $\frac{1}{2}$ "	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	4"	15 lbs.	\$12.00
D-6	6 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	6"	35 lbs.	\$18.00
D-9	9"	2 $\frac{1}{2}$ "	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottage Grove Ave., CHICAGO, ILLINOIS

JUST 1 SET OF 12

Champion Expanding Mandrels

Will fill by thousandths any inside diameter from $\frac{1}{2}$ " to $6\frac{1}{2}$ "



And any expansion within that range is guaranteed

So Simple—only two parts.

So Handy—always ready for any job.

So Efficient—dependable for precision accuracy.

They are suitable for all classes of work, large or small, in all kinds of metal. They hold work of any length of bore and do not chatter. They are lighter, more easily handled, and keep truer than common mandrels. They release work easily. And the grinding of all parts after hardening insures the greatest accuracy. The cost is only about one-fifth that of solid arbors of equal range graduated by sixteenths.

Our Catalog also describes

Champion Tool Holders, Champion Emery Wheel Dressers, Machinists' Vises and Clamps, etc., and our large line of practical, hard-to-beat Shop Furniture. Copy upon request.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

Abolish Expensive Hand Finishing

with a



Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

WALLS SALES CORP., 96 Warren Street
NEW YORK

PEERLESS

For Flat
Work



8 Sizes

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PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

No. 10 Ball Bearing Punch



Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ " Iron
Weight, 8½ lbs.

No. 8 Roller Bearing Punch



Operating handles will not become disengaged.

CAPACITY— $\frac{1}{4}$ " hole thru $\frac{1}{4}$ " iron. Weight, 16 lbs.

Made in 3 sizes: Nos. 7, 7½ and 8.

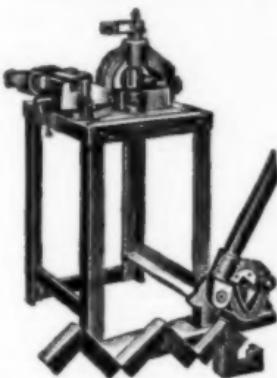
No. 20 Ball Bearing Punch



Capacity, $\frac{1}{2}$ -inch hole through $\frac{1}{2}$ -inch iron

Weight, Complete
20 lbs.

Angle Iron Combination No. 455



Shears, Notches and Bends
a 2-inch by 2-inch by $\frac{1}{4}$ -inch Angle Iron in One
Minute Flat.

No. 6 Slitting Shear Roller Bearing



Capacity $\frac{3}{8}$ thickness. Throatless
Drop Forged

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Whitney Metal Tool Co.
95 Forbes Street, Rockford, Illinois

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The Cataract Line



For Supreme Service—

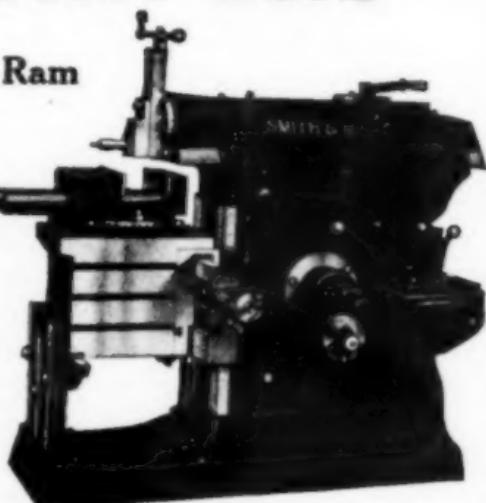
Because they meet the modern demand for superior accuracy and workmanship—ask for catalog

Hardinge Brothers Inc.
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"V" Type Ram

12", 14", 16".
20", 25" Gear
Box single pul-
ley or motor
drive, also 16".
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

12 SPINDLE SPEEDS

Chrome Nickel Steel Gears



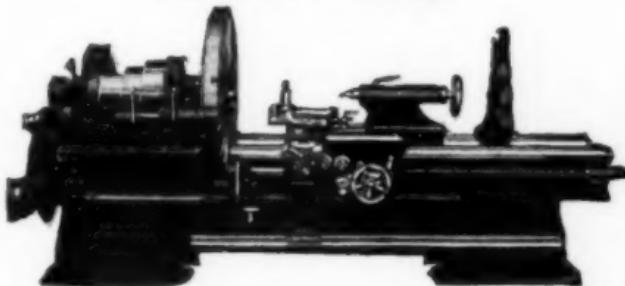
C. & J. 15/16-inch
Geared Head
Motor Drive Lathe

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Carroll & Jamieson Machine Tool Co.
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Extension Gap Lathe

24"-46" Swing



Other Sizes from 14" to 72" Swing

For turning work of large diameter and extra length,
as well as work within their ordinary capacity.

FAY & SCOTT, Dexter, Maine

MIKRON



**AUTOMATIC
SMALL PRECISION**

Gear Hobbers

Gear Cutters

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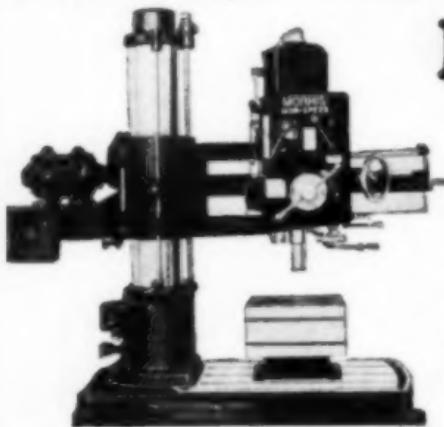
Thread Millers

Hob Grinders

Catalogs On Request

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Morris Mor-Speed Radials



**Built in
9-11-13⁸
Column Diameters**

This is the last word in Radial Drill Design. Timken Bearing equipped. All speed and feed changes located in the head. Many other features.

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Represented by The Pratt & Whitney Co. Sales Agencies

Improved Thompson Universal Grinder

Self-contained and motor driven, this standard Grinder combines efficient means for the rapid and accurate production of every grinding operation required in a machine shop.

These machines are now equipped with the new auxiliary coarse cross feed for surface grinding.

Capacity 12" x 36"

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Grinder Co.**

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**Savings of
65%
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COLONIAL Broach Sharpener

Actual figures show that it costs 65% more to sharpen broaches on ordinary grinding equipment than on a COLONIAL. Why bear this extra expense? Specially designed for sharpening broaches, the COLONIAL finishes the teeth and under-cut with great accuracy. Quickly pays for itself and improves the quality of your broaching work.

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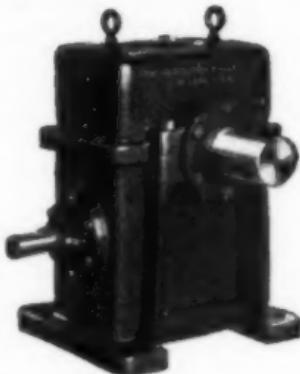
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1/16 HP up to 200 HP

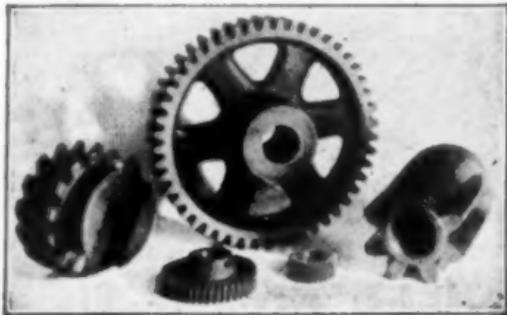
Any ratio you desire in standard size units.

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We also manufacture a complete line of industrial gears.



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ALL
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MEDIUM and SMALL SIZES

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In Stock—Immediate Delivery



Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

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STANDARDIZATION PAYS



TYPE V (TIMKEN EQUIPPED)

SPEED REDUCERS

ALL TYPES
FOR LIGHT AND
HEAVY DUTY IN
STOCK FOR

IMMEDIATE DELIVERY

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NORTH QUINCY, MASS.

BOSTON GEARS

Roper Rotary Pumps are EFFICIENT Pumps



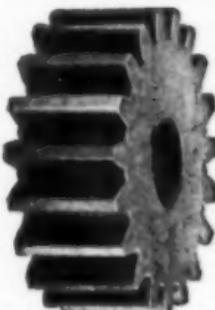
They set new records in pressure pumping for hydraulic power transmission on machine tools, presses, hoists, stokers, accumulators, etc. Strictly high grade—built of the sturdiest materials—fully guaranteed. Sizes and designs to meet individual requirements—can be built in as a part of any machine.

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ROPER

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Good Gears for Every Purpose

We make gears for every purpose—with one purpose always in mind—the efficient handling of the job. You have your choice of a wide range of sizes, from $\frac{1}{8}$ " to 36", in all materials including Formica and Bakelite. A staff of engineers, backed by over 20 years experience, is ready to help you without charge. *Send in your specifications for an estimate.*

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Drill From 900 to 1400 Holes
per Hour



with the
DETROIT
Semi-Automatic
Five Spindle

DRILLING MACHINE

This efficient production machine will turn out the work as fast as the operator can feed it stock. A pull of the lever locks or unlocks the fixtures instantly. Capacity No. 60 to $\frac{3}{8}$ " drills. If you are looking for speed, accuracy, simplicity and low cost operation—try the DETROIT!

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DORMAN Single & Multiple Drill Heads and Tappers

Built
to
Order

Note the hardened and ground locating pins for positioning the drills.



(Installation at
L. C. Smith and
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writers, Inc.)

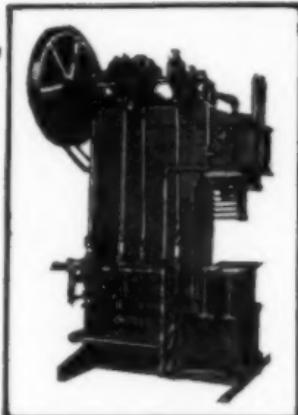
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Blue Prints
or Sketch
for Estimate*

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Hydraulic Pressure To Meet Your Specific Need

No matter what your need—whether for straightening, drifting, forming, broaching, etc., Lourie Presses can serve you in any capacity.

Perhaps you are encountering difficulty in forcing that can be accomplished more soundly and economically by hydraulic pressure. New uses for the Lourie Press are being found daily!



Steel Plate Construction

Our Engineering Dep't. welcomes the opportunity to suggest methods of applying hydraulic pressure. Ask for Bulletins 1301-2.

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The Spirit Of the Times



is reflected in the speed and stamina of Rockford High Duty Punch Presses.

They are built to produce and maintain Hi-Production—and they do it.

Wide range of sizes and types.

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Rockford Iron Works
Rockford, Ill.

It Will Meet Your Needs

U. S. Sensitive 14" Floor Drill

Built to drill holes up to $\frac{1}{2}$ " quickly,
accurately and economically.

Price with motor,
switch and belts - **\$115**

Or with Counter-
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Steel spindle ground to size, with ball
thrust bearing; vertical adjustment to
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three speeds, etc. Further information
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The U. S. Machine Tool Co.
1952 W. 6th St., Cincinnati, Ohio



U. S. MULTIPLE SPINDLE Drill Heads



Made regularly with 2 to
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drill in *any pattern*.
Special heads to order.

Also made with fixed
spindles to fit your work.

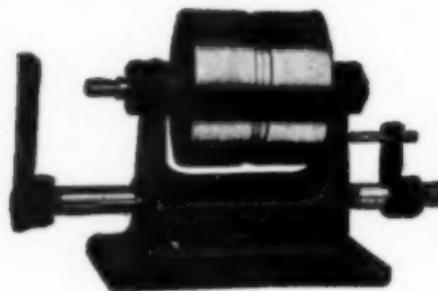
Drills two or more holes
with the same speeds
and feeds that are used
for drilling one.

*Send us a layout of your
work and we'll help to
reduce your costs*

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Light Tapping at Light Cost



This little machine has a mighty wide capacity—and plenty of speed. Except for the feed and removing of the work it's automatic, and equally efficient on tapping, reaming, burning, countersinking and similar operations. The work is notable for the almost total absence of tap breakage, and the thread is never stripped. A popular machine, economical and dependable on all work.

Prices and details on request.

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Buffalo 10" Jr. Bench Drill

Direct connections to $\frac{1}{4}$ h. p. motor are furnished by this two speed drill. A first class outfit for garages, machine and repair shops.

Height of drill, $27\frac{1}{2}$ ".

Drills $\frac{3}{8}$ " holes to center of 10" circle.

Travel of spindle, $3\frac{1}{2}$ ".

Diameter of table, 8".

Size of tight and loose pulleys, $4 \times 1\frac{1}{8}$ ".

Vertical movement of table, 7".

Speed of driving pulleys, 550 R.P.M.

*Circular No. 1647-A
gives full details.*

Buffalo Forge Co.

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"Use the MALL Method"



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Cleaning
Scraping
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Mall Tools are powerful tools

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1/4 H. P.-Type RF-M4



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**FLEXIBLE SHAFT
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Die and Tool Makers

Are giving excellent results
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Production Grinding at Low Cost

Use PORTER - CABLE Type D-2 Disc Grinders for removing burrs and excess metal. These grinders are sturdy, yet inexpensive, and can be conveniently moved about the plant. Motor driven from any light or power line.

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GRINDERS

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Automatic Screw Machine Products

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NEW DAYLIGHT PLANT—MODERN EQUIPMENT

Our Engineering Department, thoroly experienced in the above work, is ready to assist you. Our modern methods often reduce costs. We have complete facilities for assembling.

*We shall be glad to have our representative call,
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Spindle Speeds
to 10,000 R. P. M.



SIGOURNEY No. 0

All Ball Bearing High Speed Sensitive Bench Drill Press

AN UNUSUALLY sensitive drill for accurate work at high speeds. Like all Sigourney Drills, it is sold on quality rather than price. All parts are interchangeable.

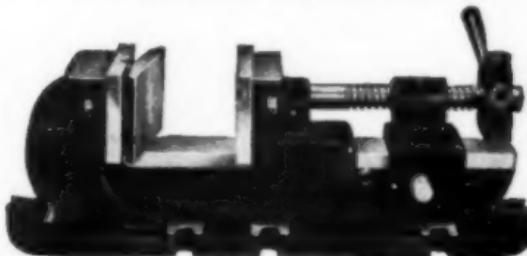
Sigourney Drills are made with one to four spindles. They are all extremely sensitive, accurate and durable.

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Gem Drill Press Vise

With Automatic, Quick-Acting, Powerful Grip



*Holds
Irregular
Pieces
Firmly*

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

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You have heard of them.

Used in all countries.

The one riveter that imitates riveting
with hand hammer and set.

17 STYLES

Rivets from .008" to $\frac{5}{16}$ " without distortion, or
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Especially for fine, high grade work.

H. P. Townsend Mfg. Co.

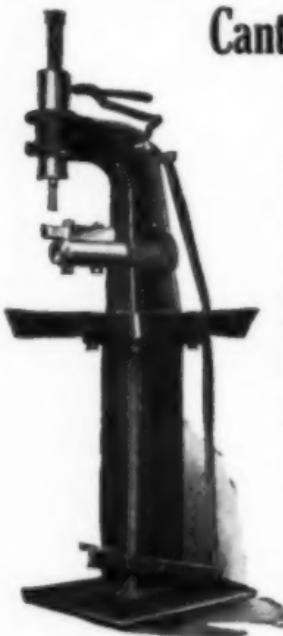
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Canton Pedestal and Bench Pneumatic Riveters

Give more blows with more power
in every blow, hence greater pro-
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No rubber, leather or wood in the
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Nothing equals compressed air for
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You get the best when you buy a
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Cover a wide field of riveting.
Simple in design but—
Rigid and powerful.
Made in 15 Models.

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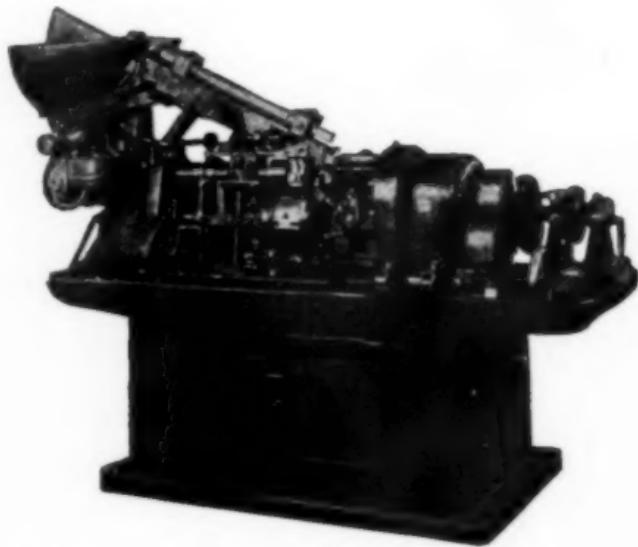
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For All Forcing Operations

Illustration shows our
No. 55 Power Drive
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Combined Automatic Pointing and Threading Machines



For Bolts and Cap Screws
Capacity— $3/16$ " x 1" Diameter
1" to 6" Long

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THE ECONOMY ENGINEERING

Automatic Shaving Machines



Shaves top and underneath
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Capacity $1\frac{1}{4}'' \times 3\frac{3}{4}''$ Diameter
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Information

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SCREW DRIVING AND NUT SETTING MACHINES



For
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Several
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Portable—Electric—Versatile—for
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TYPE “G” VIM Tool has
flexible shaft with universal
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for small screws
up to No. 6.
Weighs only 12
ounces. Excellent
for use in out-of-
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*We have other types to suit your conditions.
Send for Bulletins and Prices.*

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FLEXIBLE SHAFT EQUIPMENT

Increase Production
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**The Quality Tool for
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Made in various sizes and types to meet your requirements.

For grinding, polishing, sanding, wire-brushing, filing, buffing, finishing, etc.

Speeds from 660 to 12,000
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Sturdy construction—
reduces vibration to a
minimum; assures
efficient operation.

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Portable Flexible Shaft Machinery

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**Automatic Turning, Drilling and
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A New High Speed Production Tool

HERE is a real cost cutting tool for machining brass and iron castings, drop forgings, second operation work on screw machine products and other parts. Electrically operated and controlled and operator has an unobstructed view of work at all times. Fixtures of various designs may be attached to face of table, which can be mechanically, air or hydraulically operated. Set-ups are simple, each spindle is an independent unit. Spindle speeds up to 6000 RPM. Coolant pump and reservoir, ball bearings, automatic lubrication.

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When you purchase twist drills, do you "go shopping" or place your order on the "Cost-per-Hole" Test?

What do we mean by "Cost-per-Hole" Test? Simply that, no matter what you pay for drills, their value depends entirely upon the number of holes each drill can produce, and the cost per hole drilled.

As a result, more and more drill users, and buyers, are asking, not "How much?" but "What do your drills cost per hole?"

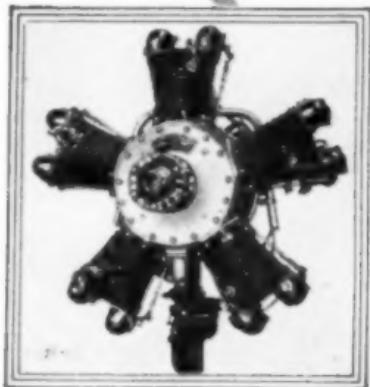
Cle-Forge High Speed Drills are offered you on the basis of their known, everyday performance. If you are interested in this modern, scientific way of buying, ask us to send you Performance Digests Nos. 56, 58, 59, 60, 61, 72, 82 and 83, together with complete instruction forms for making a comprehensive drill test in your own shop.



TRADE MARK
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The CLEVELAND TWIST DRILL
CLEVELAND COMPANY
CLEVELAND
NEW YORK-CHICAGO-LONDON
SAN FRANCISCO

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

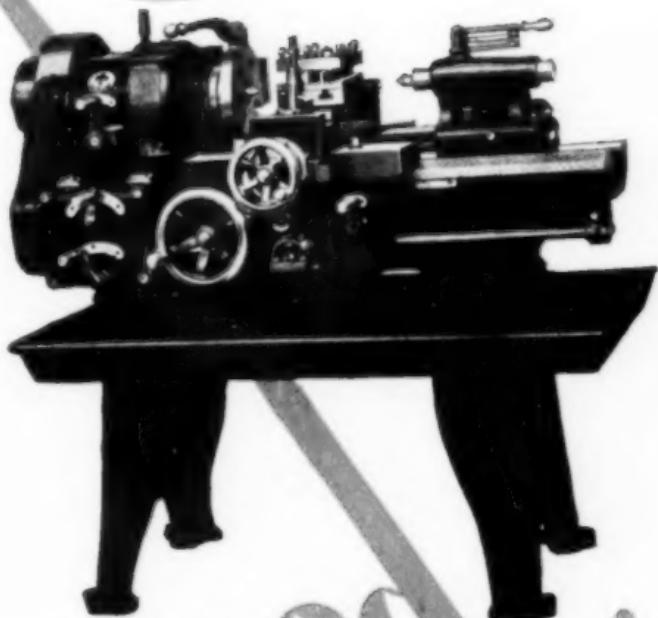


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LeBlond lathes and LeBlond aircraft engines have established records in their respective fields. Both built for speed, under the highest standards of accuracy and precision.

The lathe illustrated is our 11" Rapid Production, a time saver on work to be turned and faced simultaneously.

THE
R. K. LeBLOND MCH. TOOL CO.
Cincinnati, Ohio



speed

TRY THIS NEW VALVE

COMPLETE CONTROL
ANYWHERE BETWEEN
COMPRESSOR & TOOL

THIS new Quick-As-Wink valve controls air under pressure as quickly—as positively and as safely as you would snap an electric light switch.

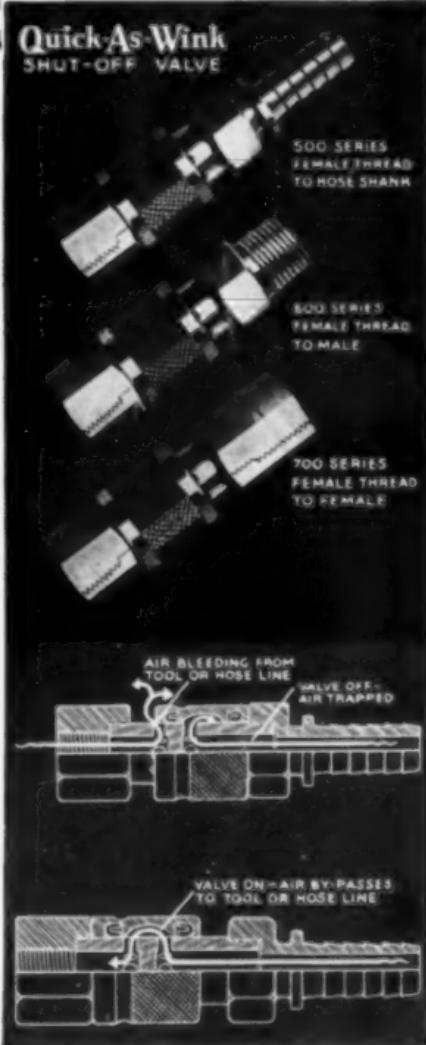
When you push valve sleeve forward, the air by-passes to hose or tool. When you push valve sleeve back, the air automatically bleeds from hose or tool, while the air from compressor is trapped, relieving all pressure beyond the valve.

By means of two "U" leather packings the air pressure itself effects the seal—the higher the pressure, the tighter the seal.

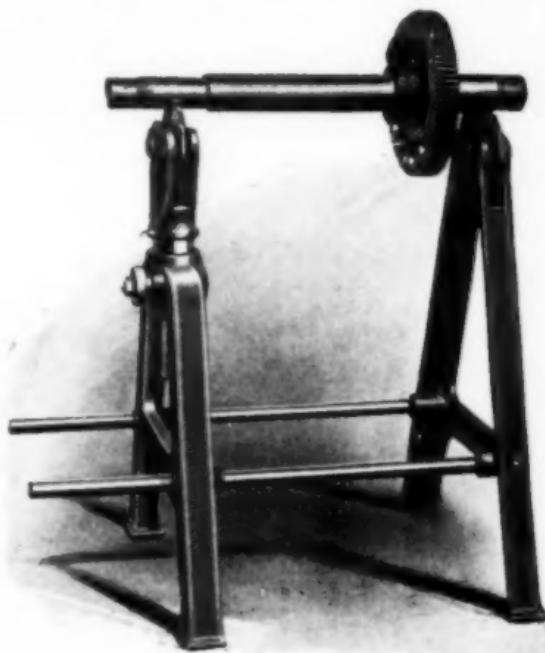
Wherever air is used under pressure, there is a place to save time and money by using Quick-As-Wink valves. They are made in the types shown to fit standard sizes of pipe and hose and are sold by leading contractor, foundry and mill supply houses everywhere.

If you would like to try Quick-As-Wink valves, write us details of your particular use and we will send the proper size and type for testing purposes.

C. B. HUNT & SON
647 McKinley Ave., Salem, O.
Also Makers Of
Quick-As-Wink
Hose Couplings--Buffing Wheels



BALANCING TOOLS



A Size And Type For Every Job

Sundstrand 20th Century Balancing Tools are made in a wide range of sizes and types. Their range is practically unlimited and includes aeroplane propellers, armatures, pulleys, cones, flywheels, polishing wheels, etc.

Capacity from 800 lbs to 24000 lbs.

Combination Balancing and Drilling Machines also available.

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Sundstrand Machine Tool Co.

Lathes, Milling Machines, Centering Machines, Balancing Tools

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CAD
Standardized
set-up appliances

Why force your men to waste time on machine tool table set-ups when CAD standardized appliances will convert this non-productive time into productive labor?

STANDARD SHOP EQUIPMENT CO., Inc.
Set-up appliances for machine tools
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**You Cannot Overload The
HANDIEST RACKS**



Cast of high grade machinery iron they have a capacity of about 10,000 lbs. steel per single arm set or 20,000 lbs. per double arm set. Self-balancing — floor fastening seldom required. Ideal for servicing stock to automatic machines or for storage purposes. Occupy less space than others waste. Save three-fourths of former floor space. Pay for themselves quickly.

Shipped on FREE TRIAL

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"BURR" Keyseating Costs Less

No Dismantling—No Fuss



**The BURR
Portable
Keyseater**

Cuts keyways
up to 12" long,
in shafts up to 5 $\frac{1}{2}$
diam., anywhere,
in any position.

Have one on
hand for your
next emergency—the cost is often saved on a single job. The
seven sizes are *quick* and *accurate*. Hand or power driven.
Over 10,000 in use. *Order yours today and save money!*

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Monster

Keyseater

Not prehistoric but for the
use of the present time.

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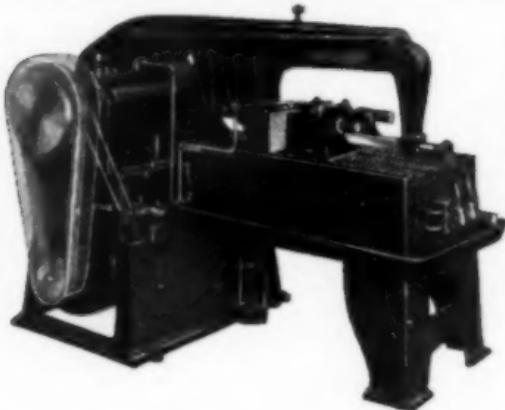
National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.



A NEW POWER SAW RACINE HYDRAULIC SHEARCUT



Positive, hydraulic feed for large size stock. Capacity 9" x 9". Feed, lift and clutch are all hydraulic. Cutting rate in 9" cold rolled 15 to 20 minutes. This machine is new in every way and offers outstanding advantages on production work.

Write for complete information today.

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Automatic Saw Sharpener



for Saws 2 1/4" to 5" Grinds 60 T. Per Min. and 6-1/32" Saws at Once. Has Ball Bearing Spindle and Master Index Plate. Has no Equal for Grinding Saws Concentric With Hole, Because It Has Self Adjusted Bearings on Wheel and Saw Spindle.

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J. E. Porter Machine Co.
1872 Jefferson St., Muskegon, Michigan

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The LIBERT Shear guarantees rapid, accurate cutting of regular or irregular shapes. Capacity from thinnest shim to 10 gauge ($\frac{1}{64}$ ") metal, as fast as operator can feed. Foot control leaves both hands free to guide work. Edges are true and square and so smooth no file finishing is needed. Inside of plates cut as easily as outside—you can split a scribed line.

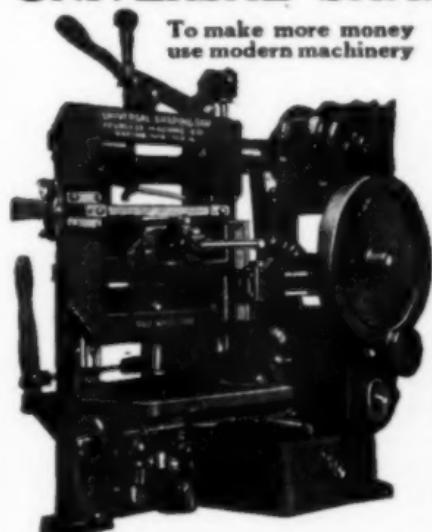
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LIBERT MACHINE CO., Green Bay, Wis.

—PEERLESS— UNIVERSAL SHAPING SAW

To make more money
use modern machinery



Different Principles
Greater Efficiency
Give The Most Of—
Speed
Accuracy
Blade Economy

SIZES:
6 $\frac{1}{2}$ x 6 $\frac{1}{2}$ — 9 $\frac{1}{2}$ x 9 $\frac{1}{2}$ — 13 $\frac{1}{2}$ x 13 $\frac{1}{2}$
PEERLESS
HIGH SPEED HACK-SAWS
6 $\frac{1}{2}$ x 6 $\frac{1}{2}$ 9 $\frac{1}{2}$ x 9 $\frac{1}{2}$ 13 $\frac{1}{2}$ x 16 $\frac{1}{2}$
Sturdy—Efficient—Reliable

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Cut Your Straightening Costs

Springfield
Straightening
Press—



Made in
3 Sizes

Accurate
Straightening
Service in
Shop
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Toolroom
Garage

The arrangement of the Springfield makes it the ideal tool for straightening any length of rough or finished work—truing sprung tools—or testing and balancing cams, crank shafts, etc. Placed on the bench it saves the operator's time by eliminating waste steps, and makes for quicker handling of the work.

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We also manufacture Engine Lathes and Shapers

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Balancing Ways



Are extremely sensitive and
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Made of quality materials in
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everything that revolves up
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ready, always accurate, and
lasting in their service.

"Swing"	20"	40"	60"	72"	96"	120"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	Ben
Code	Ben	Ben	Ben	Ben	Ben	Ben

Any of above can be furnished with longer shafts

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Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



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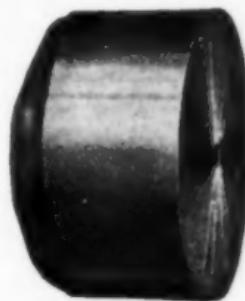
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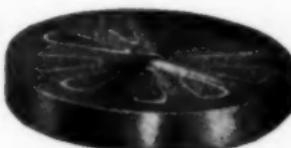
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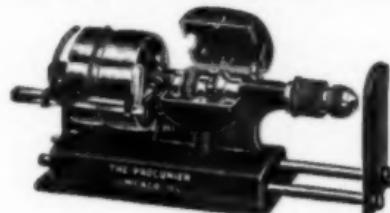
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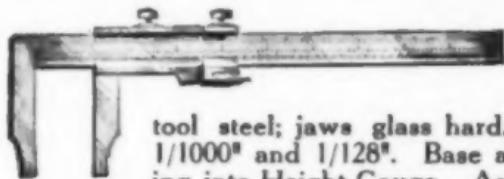
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Immediate shipment from stock

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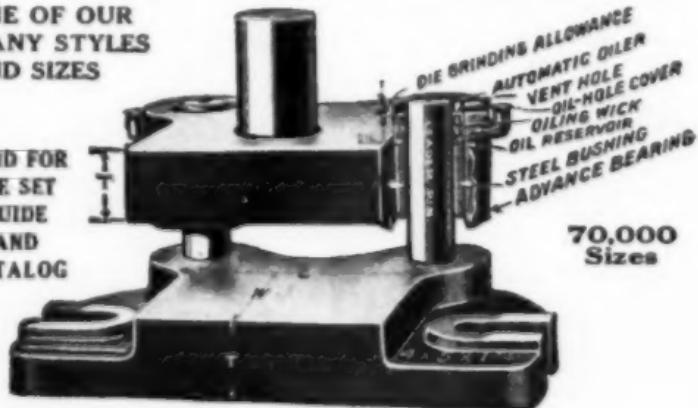
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Weight	40 lbs.

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7	7 $\frac{3}{4}$ "	5 $\frac{1}{8}$ "	2"	145 lbs.	\$33.00	160 lbs.	\$45.00
6	6"	8"	1 $\frac{1}{2}$ "	Drill Press Vise		60 lbs.	\$20.00

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Easily closed by twist of fingers or self-closing. This feature means a dust- and grit-tight cup and prevents oil throwing during machine operation.

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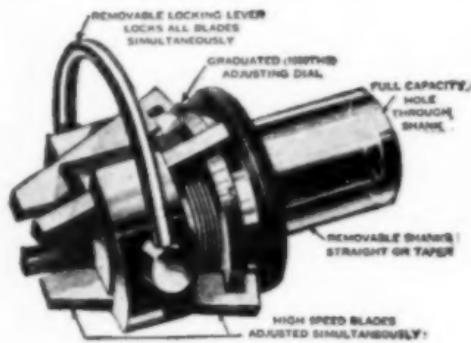
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(Improved)

For The
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Accurate
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7
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Adjustable-Replaceable
Blades

7
Styles

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THE ETTCO High Speed Tapping Attachment

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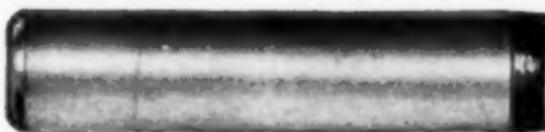
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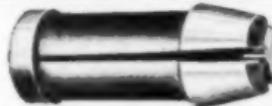
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J. & H. Electric Co., Providence, R. I.

Die Casting Machines

Madison-Kipp Corporation, Madison, Wis.

Die Making Machines

Oliver Instrument Co., Adrian, Mich.

Dies, Automatic Self-Opening

National Acme Co., Cleveland, Ohio
Richter-Shafer Co., Erie, Pa.

Dies, Blank and Forming

American Tool Works, Inc., Hartford, Conn.

Dies, Die Casting

Madison-Kipp Corporation, Madison, Wis.

Die Sets

Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Daniy Machine Specialties, Inc., 3116 So. 52nd Ave., Chicago

John H. Dorman, West New York, N. J.

Die Sinking and Engraving Machines

Keller Mech. Eng. Corp., 58A Washington St., Brooklyn, N. Y.

Dividing Heads

Scherr Co., Geo., 144 Liberty St., New York
Stevens Inc., John B., 306 Hudson Street, New York

Drill Holders

Chicago Tool & Engineering Co., 225 So. Chicago Ave., Chicago

Drill Racks

Poerless Machine Co., Racine, Wis.

Drilling Heads, Multiple

John H. Dorman, West New York, N. J.
Oesterlein Machine Co., Cincinnati, Ohio
Stecher Co., Chas., 2452 N. Greenview Av., United States Drill Head Co., Cincinnati

Drilling Machines, Automatic

Bradford Machine Tool Co., Cincinnati, Ohio
Stecher Co., Chas., 2452 N. Greenview Av., Chicago

Drilling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Avay Drilling Machine Co., Cincinnati
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Stecher Co., Chas., 2452 N. Greenview Av., Chicago

Taylor & Fann Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Boiler

National Elect. Prod. Co., 148 Baxter, N. Y.

Drilling Machines, Horizontal

Detroit Machine Tool Co., Detroit, Mich.
Frew Machine Co., Philadelphia, Pa.
Morris Machine Tool Co., Cincinnati, Ohio
National Elect. Prod. Co., 148 Baxter, N. Y.
Stevens Inc., John B., 306 Hudson Street, New York
Whirlwind Products Co., Indianapolis, Ind.

Drilling Machines, Multiple Spindles

Avay Drilling Machine Co., Cincinnati
Detroit Machine Tool Co., Detroit, Mich.
Frots-Burt Co., Cleveland, O.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fann Co., Hartford, Conn.

Drilling Machines, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Hisey-Wolf Machine Co., Cincinnati, O.
Mall Tool Co., 7730 S. Chicago Ave., Chicago
National Elect. Prod. Co., 148 Baxter, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Strand Co., N. A., 6001 N. Lincoln St., Chicago
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Tool Co., 148 Broadway, New York
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Post

Buffalo Forge Co., Buffalo, N. Y.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Hammond Mfg. Co., Cleveland, Ohio.
Hisey-Wolf Machine Co., Cincinnati, Ohio
National Elect. Prod. Co., 148 Baxter, N. Y.

Drilling Machines, Radial

American Tool Works Co., Cincinnati, O.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Dresser Machine Tool Co., Cincinnati, O.
Hammond Mfg. Co., Cleveland, Ohio.
Morris Machine Tool Co., Cincinnati, Ohio
National Elect. Prod. Co., 148 Baxter, N. Y.
Taylor & Fann Co., Hartford, Conn.
Western Mchne. Tool Works, Holland, Mich.

Classified Finding Index

Drilling Machines, Semi-Automatic

Detroit Machine Tool Co., Detroit, Mich.
Stecher Co., Chas., 2452 N. Greenview Av., Chicago

Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Cincinnati, Ohio
Candy-Otto Mfg. Co., Chicago Heights, Ill.
Foote-Burt Co., Cleveland, O.
Leiland-Gifford Co., Worcester, Mass.
National Elect. Prod. Co., 148 Baxter, N.Y.
Sigmund Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.

Drilling Machines, Vertical

Avey Drilling Machine Co., Cincinnati
Candy-Otto Mfg. Co., Chicago Heights, Ill.
Foote-Burt Co., Cleveland, O.
Leiland-Gifford Co., Worcester, Mass.
National Elect. Prod. Co., 148 Baxter, N.Y.
Oesterlein Machine Co., Cincinnati, Ohio
Sigmund Tool Co., Hartford, Conn.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Drilling Stands, Bench, Post and Radial

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Drills, Marble

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Drills, Twist

Cleveland Twist Drill Co., Cleveland, Ohio.

Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Engravers, Mechanical and Hand

Schardt's Stamp Co., Bridgeport, Conn.

Etching Machines, Electric

Brewster Co., Wm., Inc., 50 Church St., New York
Luna Electric Equipment Co., Toledo, Ohio.

Experimental Work

American Tool Works, Inc., Hartford, Conn.

Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

Filing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.
Oliver Instrument Co., Adrian, Mich.
Wardwell Mfg. Co., Cleveland, O.

Filing and Sawing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.

Flexible Shaft Machinery

Haskins Co., R. G., 4654 W. Fulton St., Chicago
Keller Mech. Eng. Corp., 58A Washington St., Brooklyn, N.Y.
Mall Tool Co., 7780 S. Chicago Ave., Chicago

Forges

Buffalo Forge Co., Buffalo, N.Y.
Candy-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, O.

Gages, Cylindrical and Thread

Federal Products Corp., Providence, R.I.

Gages, Dial

Ames Co., B. G., Waltham, Mass.
Federal Products Corp., Providence, R.I.
Standard Gage Co., Poughkeepsie, N.Y.

Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.
Standard Gage Co., Poughkeepsie, N.Y.

Gages, Special

Standard Gage Co., Poughkeepsie, N.Y.

Gages, Spline

Colonial Tool Co., Inc., Detroit, Mich.

Gages, Taper

Hartford Special Mch. Co., Hartford, Conn.

Gear Burnishers

City Machine & Tool Works, Dayton, Ohio

Gear Cutters

Chicago Gear Works, 789-773 W. Jackson Blvd., Chicago

Triplex Machine Tool Corp., 50 Church St., New York

Gear Hobbers

Scherr Co., Geo., 144 Liberty St., New York

Triplex Machine Tool Corp., 50 Church St., New York

Gears

Boston Gear Works Sales Company, Norfolk Downs, Mass.

Chicago Gear Works, 789-773 W. Jackson Blvd., Chicago

Crofoot Gear Corp., C.E., So. Easton, Mass.

Hershberg & Scott Co., Cleveland, Ohio

Jones Foundry & Machine Co., W. A., 4400 W. Roosevelt Road, Chicago

Massachusetts Gear & T. Co., Weburn, Mass.

Gears, Herringbone

Crofoot Gear Corp., C.E., So. Easton, Mass.

Hershberg & Scott Co., Cleveland, Ohio

Jones Foundry & Machine Co., W. A., 4400 W. Roosevelt Road, Chicago

Gears, Rawhide, Bakelite, Fibre

Chicago Gear Works, 789-773 W. Jackson Blvd., Chicago

Crofoot Gear Corp., C.E., So. Easton, Mass.

Hershberg & Scott Co., Cleveland, Ohio

Grinders, Air

Madison-Kipp Corporation, Madison, Wis.

Grinding Machine Work, Disc

Sherman-Klop Co., 3533 W. 47th St., Chgo.

Grinding Machine Att., Pneumatic Turbine

General Machine Works, Inc., 3010 Palmer St., Chicago

Grinding Machines, Angle Plate

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Belt

Gallmeyer & Livingston Co., Grand Rapids, Mich.

Lehmann Machine Co., St. Louis, Mo.

Pearlous Surfaceing Machine Co., Troy, N.Y.

Walls Sales Corp., 90 Warren St., New York

Grinding Machines, Bench

Gallmeyer & Livingston Co., Grand Rapids, Mich.

Hinsey-Wolf Machine Co., Cincinnati, O.

Standard Electrical Tool Co., Cincinnati, O.

U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Mch., Combination Buffer

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Caster, Reamer and Tool

Gallmeyer & Livingston Co., Grand Rapids, Mich.

Jarecki Mch. & T. Co., Grand Rapids, Mich.

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

National Machine Tool Co., Racine, Wis.

Oesterlein Machine Co., Cincinnati, Ohio

Oliver Instrument Co., Adrian, Mich.

Stevens Inc., John B., 306 Hudson Street, New York

Thompson Grinder Co., Springfield, Ohio

U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Cylindrical

American Machine Tool Co., Hackettstown, N.J.

Jarecki Mch. & T. Co., Grand Rapids, Mich.

Thompson Grinder Co., Springfield, Ohio

Classified Finding Index

Grinding Machines, Die

American Machine Tool Co., Hackettstown, N. J.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc

American Machine Tool Co., Hackettstown, N. J.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Gardner Machine Co., Beloit, Wis.
Hinsey-Wolf Machine Co., Cincinnati, Ohio
Porter Cable Machine Co., Syracuse, N. Y.
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Drill

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, External

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Floor

Hinsey-Wolf Machine Co., Cincinnati, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Flexible Shaft

Keller Mch. Eng. Corp., 58A Washington St., Brooklyn, N. Y.

Grinding Machines, Hob

Scherr Co., Geo., 144 Liberty St., New York

Grinding Machines, Internal

Chicago Tool & Engineering Co., 8889 So. Chicago Ave., Chicago
Hinsey-Wolf Machine Co., Cincinnati, Ohio
Mail Tool Co., 8889 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Onsrud Machine Works, Inc., 3910 Palmer St., Chicago
Palmer-Edwards Co., Flint, Mich.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Portable Electric

Chicago Tool & Engineering Co., 8889 So. Chicago Ave., Chicago
Cincinnati Electrical Tool Co., Cincinnati, O.
Hinsey-Wolf Machine Co., Cincinnati, O.
Keller Mch. Eng. Co., 58A Washington St., Brooklyn, N. Y.
Mail Tool Co., 7730 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Porter-Cable Machine Co., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Strand Co., N. A., 6001 N. Lincoln St., Chgo.
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Tool Co., 149 Broadway, New York
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Snagging

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hinsey-Wolf Machine Co., Cincinnati, Ohio
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Lehmann Machine Co., St. Louis, Mo.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Surface

American Machine Tool Co., Hackettstown, N. J.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Illinois Machine & Mfg. Co., LaSalle, Ill.
Stevens Inc., John B., 306 Hudson Street, New York
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Tap

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, Tool

Hinsey-Wolf Machine Co., Cincinnati, Ohio
Oesterlein Machine Co., Cincinnati, Ohio
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Tool Post

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Universal

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Grinding Wheel Dressers

Hinsey-Wolf Machine Co., Cincinnati, Ohio

Hack Saw Blades

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., 1754 State Street, Racine, Wis.

Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., 1754 State Street, Racine, Wis.

Hammers, Chipping and Calking

Canton Pneumatic Co., Canton, Ohio

Hub Grinders

Triplex Machine Tool Corp., 50 Church St., New York

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio
Hagen, H. J., 109 Lafayette St., New York

Hose Couplings

Hunt & Son, C. B., Salem, Ohio

Hydraulic Machinery

Louis Mfg. Co., 505 Washington, Chicago

Index Centers, Single and Multi Spd.

Fay & Scott, Dexter, Maine
Stevens Inc., John B., 306 Hudson Street, New York

Indicators, Dial

Federal Products Corp., Providence, R. I.
Standard Gage Co., Poughkeepsie, N. Y.

Jigs and Fixtures

American Tool Works, Inc., Hartford, Conn.
City Machine & Tool Works, Dayton, Ohio
John H. Dorman, West New York, N. J.
Hartford Special Mch. Co., Hartford, Conn.
LaForte Machine & Tool Co., LaForte, Ind.

Keyseating Machines

Burr & Son, John T., Brooklyn, N. Y.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati, Ohio

Lathe Accessories and Attachments

The Co-Operative Mch. Co., Cleveland, O.
Fay & Scott, Dexter, Maine
Reed-Prentiss Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathe Turrets

The Co-Operative Mch. Co., Cleveland, O.

Classified Finding Index

Lathes, Bench

Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bertram Ave.,
Chicago

Lathes, Engine

American Tool Works Co., Cincinnati, O.
Bradford Machine Tool Co., Cincinnati, O.
Carroll & Jamieson Mch. Tool Co., Batavia, O.
Fay & Scott, Dexter, Maine
Hardinge Brothers, Inc., 1770 Bertram Ave.,
Chicago

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
McCabe Lathes & Machinery Corp., J. J.,
149 Broadway, New York

Monarch Machine Tool Co., Sidney, O.
Merrill Machine Tool Co., Cincinnati, Ohio
Porter-Cable Machine Co., Syracuse, N. Y.
Rahn-Larmen Co., Cincinnati, Ohio
Reed-Pratt Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio
Springfield Machine Tool Co., Springfield, O.

Lathes, Extension Bed Gap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Rahn-Larmen Co., Cincinnati, O.

Lathes, Gap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lathes, Hand

Stevens Inc., John B., 306 Hudson Street,
New York

Lathes, Hydraulic Automatic

Monarch Machine Tool Co., Sidney, Ohio

Lathes, Manufacturing

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Pratt Corp., Worcester, Mass.
Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Precision

Bradford Machine Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Pratt Corp., Worcester, Mass.

Lathes, Short Bed

Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Pratt Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathes, Tool Room

Bradford Machine Tool Co., Cincinnati, Ohio
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Pratt Corp., Worcester, Mass.

Lathes, Turret

Bradford Machine Tool Co., Cincinnati, O.
Lehman Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, O.

Lubricator, Automatic

Norgren Co., Carl, A., Denver, Colo.

Lubricators, Engine

Madison-Kipp Corporation, Madison, Wis.

Lubricators, Machine Tool

Madison-Kipp Corporation, Madison, Wis.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Mills, Tilted Rotary and Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Attachments

Adams, Oden R., Rochester, N. Y.
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Pratt Corp., Worcester, Mass.
Stevens Inc., John B., 306 Hudson Street,
New York
Taylor & Fenn Co., Hartford, Conn.

Milling Machine Spacing Washers

The Co-Operative Mch. Co., Cleveland, O.

Milling Machine Work

Sherman-Klova Co., 3533 W. 47th St., Chicago

Milling Machines, Automatic

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Cam

Frow Machine Co., Philadelphia, Pa.

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
Frow Machine Co., Philadelphia, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Horizontal

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Mch., Oil Grooves for Half Bearings

Lehmann Machine Co., St. Louis, Mo.

Milling Machines, Plain

Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable

Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Rotary

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Spline

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Vertical

Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio
Reed-Pratt Corp., Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Mills, Adjustable Hollow

Adams, Oden R., Rochester, N. Y.

Genesee Mfg. Co., Inc., Rochester, N. Y.

Name Plates, Etched and Stamped

Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

Nut Setters, Electric

Hisey-Wolf Machine Co., Cincinnati, Ohio
Vim Tool Co., 149 Broadway, New York

Oil Cups

Tucker, W. W. & C. F., Hartford, Conn.

Pins, Leader And Dowel

Baumbach Mfg. Co., E. A., 1512 So. Kilbourne Ave., Chicago

Dantz Machine Specialties, Inc., 2110 S. 52nd Ave., Chicago

Pipe Bending Machines

Pedrick Tool & Machine Co., Philadelphia

Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia

Planing Machines

Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines

Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines

Cincinnati Electrical Tool Co., Cincinnati, O.

Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Hisey-Wolf Machine Co., Cincinnati, O.

Mail Tool Co., 7730 S. Chicago Ave., Chicago

New Britain Machine Co., New Britain, Conn.

Standard Electrical Tool Co., Cincinnati, O.

U. S. Electrical Tool Co., Cincinnati, Ohio

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.

Laurie Mfg. Co., 565 Washington, Chicago

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Sheldon Machine Co., 3233 Cottage Grove Ave., Chicago

Wilson, R. K., Buffalo, N. Y.

Presses, Broaching

Laurie Mfg. Co., 565 Washington, Chicago

Presses, Drawing

Laurie Mfg. Co., 565 Washington, Chicago

Presses, Flanging

Laurie Mfg. Co., 565 Washington, Chicago

Presses, Foot

Rockford Iron Works, Rockford, Ill.

Taylor & Fenn Co., Hartford, Conn.

Presses, Forging

Laurie Mfg. Co., 565 Washington, Chicago

Simplex Tool Co., Woonsocket, R. I.

Presses, Forming

Laurie Mfg. Co., 565 Washington, Chicago

Presses, Power

Hendley & Whitemore Co., Beloit, Wis.

Laurie Mfg. Co., 565 Washington, Chicago

Rockford Iron Works, Rockford, Ill.

Presses, Punch

Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.

Rockford Iron Works, Rockford, Ill.

Presses, Screw

Jarecki Mch. & T. Co., Grand Rapids, Mich.

Simplex Tool Co., Woonsocket, R. I.

Presses, Whee I

Laurie Mfg. Co., 565 Washington, Chicago

Profiling Machines

Frew Machine Co., Philadelphia, Pa.

Pulley Machinery

Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split

Conway Clutch Co., Cincinnati, O.

Jones Foundry & Machine Co., W. A., 4450

W. Roosevelt Road, Chicago

Pumps, Coolant

Roper Corporation, Geo. D., Rockford, Ill.

Pumps, Hydraulic

Laurie Mfg. Co., 565 Washington, Chicago

Pumps, Lubricant

Bethman Machinery Co., Cincinnati, O.

Punch Press Feeds

Rockford Iron Works, Rockford, Ill.

Wittke Mfg. Co., 4309 W. 24th Place, Chgo.

Punch Press Work

Sherman-Klave Co., 2525 W. 47th St., Chgo.

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco

Av., Chicago

Buffalo Forge Co., Buffalo, N. Y.

Hagen, H. J., 109 Lafayette St., New York

Hendley & Whitemore Co., Beloit, Wis.

Lewthwaite Mch. Co., T. H., 311 E. 47th, New York

Whitney Metal Tool Co., Rockford, Ill.

Punches, Power

Hagen, H. J., 109 Lafayette St., New York

Hendley & Whitemore Co., Beloit, Wis.

Punches and Dies

Hendley & Whitemore Co., Beloit, Wis.

Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.

Rockford Iron Works, Rockford, Ill.

Punches and Shears

Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Hagen, H. J., 109 Lafayette St., New York

Racks, Bar Stock

New Britain Machine Co., New Britain, Conn.

Toho Supply Co., Wm. S., Canton, O.

Reamer Holders

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Reamers, Adjustable

Cleveland Twist Drill Co., Cleveland, Ohio.

Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamers, Hollow

Adams, Osgood R., Rochester, N. Y.

Reamers, Portable Electric

Hisey-Wolf Machine Co., Cincinnati, Ohio

Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machine Equipment

Linley Bros. Co., Bridgeport, Conn.

Riveting Machines

Buffalo Forge Co., Buffalo, N. Y.

Canton Pneumatic Co., Canton, Ohio

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Linley Bros. Co., Bridgeport, Conn.

Townsend Mfg. Co., H. P., Hartford, Conn.

Rad Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco

Av., Chicago

Hendley & Whitemore Co., Beloit, Wis.

Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.

Tucker, W. W. & C. F., Inc., Hartford, Conn.

Rotary Tables, Hand Feed

Stevens Inc., John B., 306 Hudson Street,

New York

Classified Finding Index

Saw Sharpening Machines
Porter Mfg. Co., J. E., Muskegon, Mich.
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand
Reed-Prentice Corp., Worcester, Mass.

Scraping Machines, Hand & Pneumatic
Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric
Hisey, Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York

Screw Driving Machines, Automatic
Reynolds Machine Co., Massillon, Ohio

Screw Machine Products
National Acme Co., Cleveland, Ohio.
Sherman-Klove Co., 3533 W. 47th St., Chicago

Screw Machines, Automatic
National Acme Co., Cleveland, Ohio.
New Britain Mfg. Co., New Britain, Conn.
Townsend Mfg. Co., H. P., Hartford, Conn.

Set-Up Appliances
Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible
Haskins Co., H. G., 4654 W. Fulton St., Chicago
Keller Mech. Eng. Corp., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 2730 S. Chicago Ave., Chicago
Strand Co., N. A., 8001 N. Lincoln St., Chicago

Shals, Steel
American Hollow Boring Co., Erie, Pa.

Shaping Machines
American Tool Works Co., Cincinnati, O.
Osborne & Sexton Mfg. Co., Columbus, O.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.
Western Mfg. Tool Works, Holland, Mich.

Shears, Alligator
Canton Foundry & Machine Co., Canton, O.

Shears, Hand
Armstrong-Bloom Mfg. Co., 341 N. Francisco Av., Chicago
Buffalo Forge Co., Buffalo, N. Y.
Hagen, H. J., 109 Lafayette St., New York
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Machine Co., T. H., 311 E. 47th St., New York
Tucker, W. W. & C. F., Inc., Hartford, Conn.
Whitney Metal Tool Co., Rockford, Ill.

Shears, Power
Buffalo Forge Co., Buffalo, N. Y.
Hagen, H. J., 109 Lafayette St., New York
Hendley & Whittemore Co., Beloit, Wis.
Libert Machine Co., Green Bay, Wis.

Slotting Machines, Screw Head
Stevens Inc., John B., 306 Hudson Street, New York

Slotting Machines, Nut
Fellow Machine Co., Detroit, Mich.

Spacing Washers
Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery
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Illinois Machine & Mfg. Co., LaSalle, Ill.
LaPorte Machine & Tool Co., LaPorte, Ind.
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Reed-Prentice Corp., Worcester, Mass.
Superior Machine & Eng. Co., Detroit, Mich.

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Hersburgh & Scott Co., Cleveland, Ohio
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
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Spot Welding
Sherman-Klove Co., 3533 W. 47th St., Chicago

Spring Taper Sleeves
Scherr Co., Geo., 144 Liberty St., New York

Sprockets
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Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber
Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board
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Springfield Machine Tool Co., Springfield, O.
Whitney Metal Tool Co., Rockford, Ill.

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Procurer Safety Chuck Co., 14 S. Clinton St., Chicago

Tap Extractors
Walton Co., Hartford, Conn.

Tap Holders
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Procurer Safety Chuck Co., 14 S. Clinton St., Chicago
Rickett-Shafer Co., Erie, Pa.
Western Mfg. Tool Works, Holland, Mich.
Whitney Metal Tool Co., Rockford, Ill.

Taps, Collapsing
National Acme Co., Cleveland, Ohio

Thread Dials
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Triplex Machine Tool Corp., 50 Church St., New York

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Threading Machines, Automatic, Stud
Grant Mfg. & Mfg. Co., Bridgeport, Conn.

Threading Tools
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tool Holders
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Western Tool & Mfg. Co., Springfield, O.

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Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Milling

Adams, Ogden H., Rochester, N. Y.

Tools, Spot Facing

Genesee Mfg. Co., Inc., Rochester, N. Y.

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New Britain Machine Co., New Britain, Conn.

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Grant Mfg. & Mch. Co., Bridgeport, Conn.

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Canton Foundry & Machine Co., Canton, O.

Turret Tool Posts

Fay & Scott, Dexter, Maine

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Boston Gear Works Sales Company, Norfolk Downs, Mass.

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Hill, Clarke & Co., 649 W. Washington Blvd., Chicago

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Drill, D-8 Colburn heavy duty.
Gear cutter, No. 1 Bilton.
Grinder, 7 $\frac{1}{2}$ h. p. Ransom, 220-3-60.
Grinder, Oliver drill, $\frac{1}{2}$ " cap., m. d.
Grinder, 12"x24" Modern plain.
Grinder, No. 1 LeBlond univ. cutter.
Grinder, No. 1 Norton univ. cutter.
Grinder, No. 1 Univ. tool & cutter.
Grinder, No. 2 $\frac{1}{2}$ Bath universal.
Hammers, 2-A, 2-h. d. Hi-Speed,
m. d., 3 ph., 60 cy., 220 v., (4).
Hammer, No. 1AA High Speed, m.d.
Hammer, 200 lb. Bradley cush. helve.
Hoists, electric, 1 & 2 ton, d.c. mtrs.
Lathe, 14"x6" L. & S. g. h. s. p. d.
Lathe, 14"x6" Rockford q.c.g. d.b.g.
Lathe, 16"x6" Blount patternmakers.
Lathe, 18"x6" Springfield brass.
Lathe, 16"x8" Hendey, t. a., b. d.
Lathe, 12"x10" Davis tool rm., q.c.g.
Lathe, 14"-28" Fay & Scott gap.
Lathe, 17"-37"x8" Fay & Scott gap.
Lathe, 18"x10" W.-B., g. h., s. p. d.
Lathe, 27"x18" Reed, bargain.

Lathe, 48"x19' 8" Betts-Bridgeford.
Lathe, 30"x16' L. & S., q. c. g.
Lathe, 3"x36" J. & L. flat turret.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret, (2).
Lathe, No. 2 Warner & Swasey turret.
Lathes, No. 4 W. & S. tur., g. f. h.
Millers, No. 1 Cleveland plain, (2).
Miller, No. 2A Milwaukee plain.
Millers, No. 2 Ohio plain, (2).
Miller, No. 3 Cincinnati plain, m. d.
Miller, No. 5-B Becker-Brauner pl.
Miller, 35"x24"x10' Newton slab.
Miller, No. 2 Cincinnati vertical.
Pipe machine, Merrill, 24" to 12".
Pipe machine, 6" Jarecki, m. d.
Pipe machine, new 2-P. 2" Williams.
Planer, 22"x22"x50" New Haven lhd.
Planer, 24"x24"x8" Powell, 1 head.
Planer, 30"x30"x8" Powell, 1 head.
Planer, 33"x33"x12" Cincinnati, 2 hds.
Planer, 36"x36"x12" Cinti, 2 heads.
Planer, 48"x38"x12" Gray, reversible
motor drive, 3 heads.
Press, No. 3 Adriance o.b.i., 3 $\frac{1}{2}$ " str.
Presses, 3P Ferracute (2).
Presses, Nos. 19, 20 & 21 Bliss, new.
Presses, Nos. 3, 4, 5 and 6 Con-
solidated, new.
Presses, No. 20 Bliss, 3" stroke.
Press, 50 ton Lourie hydraulic.
Punch, Wickes, 48" thrt., cap. 14"x1".
Punch, No. 2 H. & J. horizontal.
Radial drill, 4' Fosdick s. p. d., g. b.
Radial drill, 4' American cone drive.
Saw, Clark metal band.
Saw, No. 12 Higley cold, cap. 5" rd.
Seamers, Bliss, Leffler & Max Ams.
Shaper, 25" Smith & M., g. b., s.p.d.
Shapers, 24" & 32" G. & E., m.d., b.g.
Shear, 10"x16 ga. Bertsch, b. d.
Shear, 96"x16 ga. Stoll power squar.
Shear, No. 0 H. & J. guillotine, b.d.
Shear, No. 103 Bliss circle.

Our warehouse is full of bargains. What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building.

Air comp. 4"x4" Union, 16 cu. ft.
 Air comp. 4 $\frac{1}{2}$ "x4 $\frac{1}{2}$ " Curtis, 25 c. f.
 Air comp., 8"x8" Bury "BB", 79 c.f.
 Air comp., 8"x9" Hall, 69 c. f.
 Air comp., 14x9x12" Ing.-R. 446 c. f.
 Bolt cutters, 1 $\frac{1}{2}$ " Landis, dbl. head.
 Bolt cutter, 1 $\frac{1}{2}$ " Landis, 3 hds., m. d.
 Boring mill, 36" Bullard, side head.
 Boring mill, 42" Bullard, 2 heads.
 Boring mill, 60" Bullard, m. d.
 Boring mill, 72" Bullard, m. d.
 Boring mill, 10'-16' Betts, m. d.
 Boring mill, horiz. No. 0 G. & L.
 Boring mill, floor type, 3 $\frac{1}{2}$ " D. & H.
 Boring mill, 3 $\frac{1}{2}$ " bar Rochester, m.d.
 Brake, 6"x16" ga. Robinson.
 Brake, 48"x3/16" Dreis & Krump.
 Brake, 12"x4" Dreis & Krump, m.d.
 Brake, press type, 10' 6" Ohl, 5/16".
 Bulldozers, Nos. 2, 4, 6, 28, 29 & 30.
 Crane, elec. 5-ton Case, 56' span.
 Dieing mches., 25 & 50 ton H. & W.
 Drill, mult. spdl. No. 30 Natco m. d.
 Drills, 14" to 38", upright.
 Drills, radial, 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 5' and 10'.
 Drill, radial, 6" American universal.
 Flanger, McCabe, 4" capacity.
 Gear cutter, 84" Cincinnati, m. d.
 Gear planers, 24", 36" & 48" Gleason.
 Generator set, 500 k.w. 220v. 3-60 cy.
 Grinder, radial, 14", 220 v. 3-60 cy.
 Grinder, crankshaft, 16"x72" Landis.
 Grinder, surface, No. 16 Blanchard.
 Grinder, surface, 14" Arter.
 Grinder, tool, No. 2 Walker.
 Hammer, blacksmith, power, 35-lbs.
 Hammer, 80-lb. Bradley, cush. helve.
 Hammers, Nos. 3-B.4-B, 4-N Hazel.
 Hammers, steam, 600 lb. to 6000 lb.
 Jacks, 35-ton Barrett, ball bearing.
 Jointer, 24" Fay & Egan.
 Lathes, 10" to 60".
 Lathe, 10"x5" Star, h. s., chuck, b.d.
 Lathe, 16"x6" Hendey.
 Lathe, 16"x6" LeBlond, q. c. g.
 Lathe, 20"x8" Hendey, tie bar.
 Lathe, 26"x16" Bridgeford, grd. hd.
 Lathe, 36"x18" Bridgeford, g.h., m.d.
 Lathe, 32"x34" Pittsburgh, m. d.
 Lathe, Lo-Sw., 38"x60" Fitchburg.
 Lathe, 18"x6" Fox brass.
 Lathe, turret, No. 6 Warner & S.
 Lathe, tur., 34" Gisholt, Model K.
 Lathe, turret, 24" Steinle, 6 $\frac{1}{2}$ " hole.
 Lathe, turret, No. 8 Warner & S.
 Lysholm tables, 72"x30".
 Miller, hand, United States 6"x24".
 Miller, plain, No. 3 Cincinnati.
 Miller, plain & vert. No. 5 Ingersoll.
 Miller, slab, Ing. 46x30x20/4 hds. m.d.
 Miller, thread, 10" Lees-Bradner.
 Miller, univ., No. 4 B. & S. 12" d.h.
 Miller, vert. Taylor & Fenn, 18x6".

Pittsburgh, Pa.

Miller, vert. No. 5 Brown & Sharpe.
 Mult-aut-matics, 12" Bullard, m. d.
 Pipe machine, 2" Landis, b. d.
 Pipe machine, 6" Jarecki, m. d.
 Pipe machine, 8" Oster, b. d.
 Pipe machine, 8" Williams, m. d.
 Pipe mch., 16" Landis, 2 hds. a.p.d.
 Planer, 96"x16"x18" Ridgway, 4 hds.
 Planer, 48"x42"x16" D. & H. o. s.
 Planer, rotary, 48" Niles, m. d.
 Press, arbor, No. 5 Greenler.
 Press, hyd., 50-ton Lourie.
 Press, a. s. 13"x19 $\frac{1}{2}$, 2" stroke.
 Press, geared, No. 34 Toledo.
 Press, geared, No. 4 Bliss.
 Press, No. 78 $\frac{1}{2}$ Bliss, t. r. 10" stroke.
 Press, 36" Toledo, dbl. crk. 2" str.
 Press, No. 94-P Toledo, 42"x19 $\frac{1}{2}$ ".
 Press, wheel, 200-ton Niles.
 Punch, 24" beam, Cleveland.
 Punch, hor., Cleveland, 1" thru 1".
 Punch & sh., EF" Cleve. 24", arch jaw
 Punch, No. 1 L. & A. 30" thr., 18"-1".
 Punch, type "A" L. & A. d. e., 2"-1".
 Riveter, Allen, 36", 1" rivet.
 Riveting hammer, 1" high speed.
 Rivet spinner, 5/16" Grant, 6" thrt.
 Rolls, angle bend, 2"x2"x $\frac{1}{2}$ Bertsch.
 Rolls, bending, 54"x8" Cincinnati.
 Rolls, bending, 12"x8" Wickes, m.d.
 Rolls, bending, 32"x8" Niles.
 Saw, band, 33" Fay, b. d.
 Saw, frict. Model I-A Hunter, 24".
 Saw, friction, Nos. 2 & 3 Ryerson.
 Saw, cold, 48" Newton, m. d.
 Saw, hot, 54" Mesta sliding frame.
 Shapers, 16", 20", 24", 34", 36" G. & E.
 Shaper, 24" Potter & J. universal,
 motor drive.
 Shear, angle, 6"x6"x $\frac{1}{2}$ " Cleveland.
 Shear, alligator, Lewis 14" sq. b. d.
 Shear, alli., No. 3 Carlin, 3 $\frac{1}{2}$ " sq.
 Shear, bevel, Lennox 1 $\frac{1}{2}$ ".
 Shear, circle, No. 110 $\frac{1}{2}$ Bliss.
 Shear, gang slitter, 225-A, 36" Bliss.
 Shear, guil. National 18" rd. b. d.
 Shear, plate, 49"x2" United, m. d.
 Shear, plate, 120"x2" United, m.d.
 Shear, sq., 20"x16 ga. Bliss power.
 Shear, 38"x16 ga. Niagara, b. d.
 Shear, 12"x14 ga. Peerless, 95% new.
 Shear, 12"x8" Wheeling, 31" gap,
 motor drive.
 Shear, rotary, Ryerson, 26" gap, 3".
 Shr., rot., Newbold, 40" gap, $\frac{1}{2}$ " cap.
 Straightener, No. 1 Abramson 18" r.,
 Straightener, 48" United, 16 ga. 13 rolls.
 Straightener, 60" Nat. 14 ga. 17 rolls.
 Straightener, H. & J. 48"x $\frac{1}{2}$ " 8 rolls.
 Straightener, Phila., 6"x $\frac{1}{2}$, 7-rolls.
 Swaging machine, No. 3 Langelier.
 Upsetters, 1" to 8".
 Welders, spot and butt.

USED AND REBUILT MACHINERY

FOR SALE BY

Badger-Packard Mchy. Co., 133-9 W. Water St., Milwaukee, Wis.

Boring mill, 76" Bullard, vertical.	\$1400.
Drill press, No. 2 Colburn.	400.
Lathe, 24x10 Hendey, rebuilt.	800.
Miller, No. 2 Cincinnati, plain, all geared, single pulley drive, rebuilt.	950.
Planer, 36x24x8' Pease.	750.
Planer, 42x42x10' Pond.	1100.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Arbor press, No. 38 Greenerd.	
Automatic, Cleveland Model A, $\frac{3}{4}$ ".	
Automatic, Potter & Johnston 5-A m. d., late machine, perfect condition.	
Automatic, Cleveland Model A, $\frac{3}{4}$ ".	
Automatic, Cleveland Model A, $\frac{3}{4}$ ".	
Brake, 8'x16 gauge Robinson power brake, new condition.	
Broaching, No. 3 La Pointe Hudson.	
Drill, radial, 5' Fosdick motor drive.	
Grinder, internal, Taylor & Fenn, power feed and chuck.	
Hammer, High Speed riveting No. 3-A motor drive.	
Lathe, Sundstrand 9"x24" geared head, ball bearing, m. d., 98% new.	
Milling machine, Brown & Sharpe No. 3 plain, power quick traverse.	
Press, Cleveland No. 52 s. s. trim. with side shear, new condition.	
Press, Cleveland No. 6-I, o. b. i. brand new, weight 3300 lb.	
Squaring shear, power, 36" 18 gauge capacity.	
Squaring shear, Niagara No. 396 power, 8' 11 gauge capacity.	
Thread miller, Coulter hob thread miller, perfect condition.	
Turret lathe, No. 2 Bardsom & Oliver, bk. gear and power feed, lot of collets.	
Turret lathe, No. 6 Warner & Swasey, power feed turret and cross slide.	
Welder, arc 300 amp. Lincoln, 220 volt 60 cycle, like new.	
Welder, spot, 112 Jr. Federal, 220 volt 60 cycle, 12" throat.	
Welder, spot, 25 k. v. a. Gibb, 28" throat.	

FOR SALE BY

H. L. Morton Machinery Co., 1078 Carlyon Road, Cleveland, Ohio

Air compressor, 7 $\frac{1}{2}$ "x6" horizontal.	
Die sinker, Jackson, with cherrying head.	
Drill, Sigourney, 2-s. indle. No. 2 taper.	
Drill, Avey, high-speed, ball-bearing bench drill, No. 1 taper.	
Drill, Rockford, 22" back geared, power feed.	
Drill, Bausch, multiple 10-spindle, 8 attached, No. 2 taper, 30" round head.	
Drill, Natco, No. 21-D multiple spindle, No. 1 taper, rect. head 31"x20".	
Grinder, Gardner, No. 6 ball-bearing, 20" discs.	
Grinder, Gardner, No. 7 plain-bearing, 30" discs.	
Lathe, Monarch, 16"x8' quick change gear.	
Lathe, Boye & Emmes, 18"x8', quick change gear, taper attachment.	
Milling machine, No. 5 Cincinnati, plain.	
Milling machine, U. S. hand miller.	
Milling machine, No. 3 Cincinnati, vertical, motor drive.	
Planer, Whitcomb, 24"x24"x6".	
Punch press, No. 4 Toledo, o. b. i., 2 $\frac{1}{2}$ " stroke.	
Riveter, Grant, spinning, 5/16" capacity.	
Riveter, Hi-Speed, No. 3-A, motor drive.	
Seamer, Niagara, No. 4, double.	
Screw press, Perfection, 30 ton.	
Shaper, 15" Pratt & Whitney.	
Turret lathe, Warner & Swasey, No. 4, f. h., b. f., power feed to turret.	
Turret lathe, Warner & Swasey, No. 2 hollow-hex.	
Welder, spot, Toledo, cap, 2 $\frac{1}{2}$ " sheets, 27" arm.	
Welder, Federal, No. 118, Jr., cap, 2 $\frac{1}{2}$ " sheets, 18" arm.	

USED AND REBUILT MACHINERY

FOR SALE BY

Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

WELDERS

Toledo No. 306 seam spot welder.
 Taylor-Winfield 2 k. w. spot welder.
 Taylor-Winfield 7½ k.w. spot welder,
 motor driven.
 National 35 k. w. spot welder.
 Thomson 15 k. w. spot welder.
 Acme 5 k. w. spot welder.
 Acme 12 k. w. spot welder.
 National 8 k. w. spot welder.
 Thomson 15 k. w. spot welder, m. d.

Winfield B50SA, butt welder, cap. ½".
 Thomson 2A automatic butt welder,
 capacity ½".
 Thomson 7A automatic butt welder,
 capacity ½".
 Thomson 2C butt welder, cap. 1".
 Winfield B-103, butt welder cap. ½".
 Toledo 8B, butt welder, cap. ½".
 Toledo 10B butt welder, cap. 1½".

New machine guarantee with every welder.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

No. 2 Kempsmith Maximiller univ.
 No. 2 B. & S. univ., sgl. pulley.
 No. 3 Brown & Sharpe universal.
 No. 3 Becker-Brainard universal.
 No. 4 Becker-Brainard universal.
 No. 25 Becker plain.
 No. 3B Milwaukee plain, dbl. arm.

No. 3 Hendey plain.
 No. 3 Kempsmith plain.
 No. 3 Rockford hi-power.
 Nos. 1½, 2A, 3-B heavy Brown & S.
 48" Niles double head boring mill.
 24" Binnse horizontal boring mill.
 10 different sizes hand millers.

LATHES.

24"x12" Bradford q. c. g.
 20"x 8' Monarch q. c. g.
 18"x 8' Morris semi d. b. g.
 18"x 8' Greaves-Klusman q. c. g.
 16"x 8' Cincinnati, q. c. g., taper.
 18"x 8' Monarch q. c. g.
 16"x 8' LeBlond plain, taper.
 16"x6' Chard quick change gear.

14"x8"-13"x6' Hendeys, taper, collets
 16"x 8' Springfield q. c. g., inc. tur.
 14"x 6' Monarch q. c. g.
 14"x 6' Hamilton q. c. g.
 14"x 6' Hendey taper, draw spindle
 and relieving attachment.
 14"x6' Davis q. c. g., taper.
 Hardinge Mosley-Elgin precision.

GRINDERS.

No. 2 Norton universal (2).
 No. 12 Brown & Sharpe univ. (2).
 No. 3 Brown & Sharpe universal.
 No. 3 Wilmart & Norman surface.
 Nos. 14 and 16 Brown & Sharpe.
 4"x12" Norton self-contained.

56 Heald cylinder incl. a. c. motor.
 No. 60 Heald cylinder.
 No. 6 Heald internal.
 Bryant internal chucking.
 No. 34 E. Van Norman external.
 No. 34 Van Norman internal.

RADIALS AND DRILLS.

5' Reed-Prentice.
 4' Cincinnati-Bickford.
 4-spindle Rockford, 2' capacity
 4-spindle Henry & W., large table.
 1 and 2-spindle Sipps.

4 and 6-spindle Aveys (4).
 4-spindle No. 2 Leland-Gifford (4).
 1, 2, 3-spdl. No. 1 Leland-Gifford.
 No. 1 Leland-Gifford tapping attach.
 No. 2 Leland-Gifford large table.

PRESSES AND SHEARS.

No. 5 toggle presses, roller feed.
 Nos. 1, 2, 3, 4 Walsh, Rockford,
 Amer. Can, Consolidated presses.
 6' Niagara power squaring shear.

4' Kutschied pwr. sq., 14 ga.
 5' Bertsch pwr. sq., 15" cap. 1/16 ga.
 8' Toledo sq. shr., 15" cap. 3/16" ga.
 20", 24", 30" sliding shears.

SHAPERS AND TURRET LATHES.

16" Rockford geared, crank.
 24" Milwaukee geared crank.

20" Rockford back gear.
 22"x5' American single head.

SCREW MACHINES AND TURRET LATHES.

Nos. 1, 2, 3, 4, 6 Warner & Swasey.
 1", 1½", 2" Cleveland.
 1", 4-sp. Gridley, auto. model G.

1½" & 2½" Fosters, univ. and plain.
 No. 1-B Foster univ., grd. hd. (3).
 Large variety of smaller Fosters, etc.

MISCELLANEOUS.

Bolt cutters, 1"-2" Acme & Landis.
 Keyseaters, Nos. 6 & 2 Becker.
 Keyseaters, No. 2 Davis.

Tappers, 1½" Garvin, Pratt & Whitney.
 Tapper, 1" Gould & Eberhardt.
 Tapper, No. 2X Garvin auto.

100 Warner & Swasey, Potter & Johnston, box, boring tools, die heads, etc.

USED AND REBUILT MACHINERY

FOR SALE BY

Brown Machinery Co.

Drills, 20" Champion; C & O, Superior; 24", 32" Mechanics; 24" American. Drills, radial, 3' Prentice; 4' Bickford. Drill, Moline 66-D, 4-sp. Hole Hog. Gear hobber, Gould & Eberhardt. Grinders, Safety No 302 edge, No. 6 Besly; No. 202 Badger. Lathes, 16x6 Monarch; 18x8 Lodge & Shipley; 18" x 8' Prentice, grd. hd.; 20x12 Lodge & Shipley; 26x10 Putnam; 30x10 Blaisdell.

This is only a portion, as we have several hundred good used machines in our stock. Send us your inquiries for interesting quotation on machine shop or sheet metal working equipment.

2333 N. 9th St., St. Louis, Mo.

Millers, No. 4 Hendey; No. 7H Becker; No. 3½ Fox; No. 3 Burke. Press, arbor, No. 3 A Geier; No. 3½ Greenard. Planer, 42" x 42" x 10' Pond. Press, Lourie hydraulic, 200 ton. Punch, Rock River L, cap. 1" in 1". Riveters, Grant 4-V-3 motor drive; No. 2 rotary, motor drive. Shaper, 20" Smith & Mills. Shear, 5½" Excelsior power, 10 ga.; No. 10 Excelsior double cutting;

FOR SALE BY

McDonald Machinery Co.

1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6. Boring mill, Barrett 5" horiz.; Lucas No. 31 horiz., 24". Boring mills, 4 Bullard 42" low price. Brake, D. & K. 3', box and pan. Cut-off mchs., 4 Davis 6" capacity. Demagnetizer, Walker. Drill, Moline 4-spindle. Drills, Baker, heavy duty (2). Drills, Leland-G 1-sp. h.s., b.b. floor. Drills, H. & W. 4-sp., h.s., b.b., Sipp 1-spdl., h.s., b.b., H. & W. 2-spdl. Drills, 20", 24", 26 & 28" b. g., & tap. Drills, Prentice 3'; Bickford 4' radials. Gear hobber, Gould & E. 24". Grinders, Landis piston, motor drv. Grinder, Heald No. 60 cylinder. Grinders, modern internal; Blount 30", wet (3), Heald 8", mag. ck. Grinders, St. Louis No. 8; Modern 12" x 60". Grinder, Reed-Prentice vert. surf., 2 chucks, table 12" x 80". Grinder, Pratt & Whitney vert. surf. Grinder, Landis 16" x 66" crankshaft. Grinders, Besly & Norton d.e. disc. Hack saws, 4x4, 6x6 & 2 Racine Jrs., Racine 8x8 h.s., Peerless 6x6" h.s. Hammers, Bradley 40 lb. helve; Lathes, Davis 22" x 10' q. c. g.; Sidney 16" x 6' q. c. g., LeBlond 16" x 8' Whitcomb-B. 22" x 8' q. c. g. Monarch 16" x 8'; C. & J. 15" x 8'; Superior 18" x 8'; LeBlond 21" x 10' q. c. g.; American 18" x 8'; L. & S. 24" x 12'; all quick change grd.; 40 assorted sizes, quick and loose change gear. Lathes, Fitchburg 24" x 18'; Greaves-Klusman 24" x 16' : all standard chg. Milling machines, Ohio No. 20 plain. LeBlond No. 3-H plain; Brown &

S. No. 3 plain; B. & S. No. 3-B pl., s. p. d.; American No. 1½ plain; Cincinnati No. 3 plain; Becker No. 25 plain, Kemp No. 3 univ.; Cincinnati No. 1½ univ.; B. & S. No. 2 plain; Becker No. 2 vertical. Milling and drilling mchs., Knight No. 1½ with power feed. Pipe machine, Curtis 3", motor dr.; Merrill 4" belt drive; E. C. & B. 16"; Bignall & Keefer 12". Planers, Gray 28" x 28" x 6', 1 head; Cincinnati 36" x 36" x 18' 2 heads; Pond, 36" x 36" x 12' table, 18' bed, 2 heads; Withcomb 30" x 30" x 8". Punches, Reade 15" s. e., 4" in 1". Punch presses, 4-Consolidated No. 2; Holden No. 58; Bliss No. 62 grd.; Ferracut No. 10, b. i., (2) Federal Nos. 1, 2, 3; Bliss No. 19-C, o.b.i. Federal No. 4; Bliss No. 19; L. & J. No. 1; Rockford Nos. 2 and 3. Screw machine, Cleveland 2½" auto.; P. & W. No. 2½ hand; Foster No. 3 hand; Woods No. 2 tilted turret head; National-A. No. 52 auto., 4-spindle, m. d.; Milholland b. g. hand; Foster No. 7 hd. b. g. Shaper or slotter, vert., P. & W. 6". Shapers, S. M. 16"; 24" Queen City 24" back geared, American 20" b.g.; G. & E. 16", b. g.; Niles traveling hd.; Milwaukee 16" b. g.; Walcott 20" b. g.; S. & M. 21" and 26" b. g.; American 18" b. g.; Ohio 16", Cincinnati 20", b. g.; Boynton 7". Shears, 60" thrt. rotary slitting, (2). Square shears, Niagara 62" power. m. d. 18-ga.; Ohl 8' power. Steam hammer, Miles-B. 1100 lbs. Turret lathes, Warner & S. No. 2A.

USED AND REBUILT MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Drill, Baush hor. duplex multiple.
Grinder, 10" x 36" Norton.
Grinder, 10" x 52" Landis, s. p. d.
Grinder, 54" Gardner vert. disc.
Hobbers, Nos. 3, 12-B & C.

Lathe, No. 9 LeBlond multi-cut.
Millers, Nos. 1 & 2 Brown & Sharpe.
Miller, No. 13-B. B. & S., production.
Shaper, 24" G. & E.
Radials, 3' Cincinnati Bickford.

Partial list; send us your inquiries.

FOR SALE BY

W. H. Hobbs Supply Co.,

Eau Claire, Wis.

Blue print machine, Wagenerhorst with a. c. lamp and control.
Lathe, chucking, Conradson turret, 3x28" heavy type, designed for heavy duty work.
Lathe, Lodge & Shipley 24" x 16" engine, five step cone head, 2 1/2" hole in spindle, quick change gears, compound rest and countershaft.
Planer, Belmer 41" x 36" x 18' widened patent spur gear, two heads on cross rail, two side heads, with countershaft, power feed.

FOR SALE BY

Strafer Machinery Company,

14th and Provost St.,

Jersey City, N. J.

BORING MILLS

60" Niles-Bement-Pond d. c. mtr.
48" Gisholt speed box m. d.
No. 1 Cleveland horizontal s. p. d.

51" N.-B.-P. single pulley drive.
3" bar Fosdick horiz. belt drive.

DRILLS, RADIAL.

6' Reed Prentice inclosed head.

5' Reed Prentice speed box m. d.

GRINDERS.

16" x 48" Landis crank s. c.
10" x 24" Landis self contained.
New Reinesler planer type vertical surface 36" x 80" mag. chuck 24" x 58".

No. 60 Heald cylinder, angle plate.
No. 2 Brown & Sharpe universal.

KEYSEATERS.

No. 5 Mitts & Merrill belt drive.

No. 4 Mitts & Merrill extra equipt.

LATHES.

90" x 27" Putnam t. g. belt drive.
60" x 32" Fifield geared head.
40" x 22" Prentice, blocks and chucks.
42" - 70" x 16" Fay & Scott slide gap.

42" x 36" Niles t. g. belt drive.
26" - 48" x 27" McCabe double spindle.
36" x 32" Putnam geared head m. d.
42" x 14" Bridgeford geared head.

MILLING MACHINES.

P. & W. planer type 24" x 24" x 9' 2 hd.
No. 2-B heavy B. & S. plain.

No. 2 Cincinnati plain, m. d.
No. 3 Cincinnati vertical.

PRESSES.

400 ton W. S. hydraulic 73" x 20".
Feracute geared s. r. g. 103.
Feracute geared S. G. 52.

S. & P. 40" double crank, plain.
Stiles inclinable equal 21' Bliss.

PLANERS.

60" x 60" x 10' Pond 3 heads.
24" x 24" x 8" Cincinnati speed box.

30" x 6' Powell, 1-head.
D. & H. openside, 1 head, m. d.

SHAPERS.

24" Smith & Mills b. g. belt drive.

24" American b. g. belt drive.

SHEARS AND ROLLS.

10' Ohl squaring 1/2" capacity.
10' Loy & Nawrath 1/2" capacity.

No. 17 Niagara circular rotary.
8' H. & W. rolls, initial type.

MISCELLANEOUS.

Beading machine, Bliss.
Borer, American woodworking.
Boring bars, portable, 4" x 8".
Compressor, Ingersoll-Rand 8" x 6".
Chuck, magnetic, 24" x 58".
Chuck jaws set for boring mill.

Gear hobber, No. 5-A Lees-Bradner.
Generator, 100 k. w., a. c., Diesel.
Hoist, Liggerwood drum, motor dr.
Lathes, Oliver pattern, slide gap.
Pipe machine, 6" Saunders with dies.
Wire straightener, core, to 5/16".

USED AND REBUILT MACHINERY

FOR SALE BY

Randle Machinery Co.,

Air compressors, 10x9 Penna.
 Air comp., 13x12x14 Worthington st.
 Air comp., 13x8x10 Worthington b.d.
 Air comp., 7x6x6 Worthington b.d.
 Bending rolls, 7 $\frac{1}{2}$ " Scully.
 Bending rolls, 8 $\frac{1}{2}$ " Ryerson.
 Bending rolls, 10 $\frac{1}{2}$ " Cleveland.
 Bending rolls, 10 $\frac{1}{2}$ " Bertsch m. d.
 Bolt cutters, 4" Acme.
 Bolt cutters, 1 $\frac{1}{2}$ " & 2" Acme & Landis
 Boring mill, 36, 60 and 72" Bullard.
 Boring mill, 84" & 96" Niles.
 Boring mill, 10' Pond.
 Brake, 4"x10 ga. Robinson box.
 Brake, 8"x10 ga. D. & K. hand.
 Brake, 6"x18 ga. Keene
 Brake, 10"x5" 16" Ohl.
 Brake, 12"x $\frac{1}{2}$ " Ohl.
 Drill, 2 $\frac{1}{2}$, 3" & 4" radials,
 Gear hobber, Nos. 3 & 12 B-Colman.
 Gear hobbbers, Nos. 2 & 3 Farwell.
 Grinder, No. 14 Gardner.
 Grinder, No. 7 Gardner.
 Grinder, No. 24-53" Gardner.
 Hack saw, 6x6 Racine or Peerless.
 Hack saw, 12x12 Racine.
 Keyseater, Nos. 1 & 2 Davis.
 Lathe, 16"x8" Bradford q. c.

Also many other tools.

1733 Powers St., Cincinnati, Ohio

Lathe, 24"x14" Schumacher-Boye q.c.
 Lathe, 20"x12" American q. c.
 Lathe, 42"x18" New Haven, s. q. c.
 Lathe, 37"x28" Putnam l. c. m. d.
 Lathe, 66"x28" Fifield l. c.
 Miller, No. 2 Kempsmith.
 Miller, Nos. 2 & 3 B. & S.
 Miller, No. 2 Cincinnati universal.
 Planer, 36"x36"x10' Gray, 1 head.
 Planer, 55"x55"x30' Betts, 2 heads.
 Planer, 72"x72"x20' Ridgway, 4 hds.
 Press, No. 4 Verdin-Kappes-Verdin.
 Press, No. 2 Verdin-Kappes-Verdin.
 Press, No. 3A Willard.
 Press, No. 73 $\frac{1}{2}$ Bliss.
 Pipe machines, all sizes.
 Shaper, 16" Queen City b. g.
 Shaper, 24" Queen City b. g.
 Shaper, 16" Cincinnati b. g.
 Shear, No. 1 $\frac{1}{2}$ D. & K. m. d. alligator
 Shear, No. 2 D. & K. alligator m. d.
 Shear, 5"x16 ga. Pexto.
 Shear, 8"x14 ga. Bertsch.
 Shear, 8"x10 ga. Robinson.
 Shear, 10"x14 ga. Bertsch.
 Wheel lathe, 42" Putnam, m. d.
 Wheel press, 200 ton N.-H.-P.

Send us your inquiry.

FOR SALE BY

The O'Brien Machinery Co.,

Bending roll, 25' H. & J. 4 cap.
 Brake, Ohl 8" cap., No. 10 gauge.
 Drill, 32" Aurora, motor driven.
 Drill, 20-spindle Natco, No. 2 taper.
 Gear cutter, 36" Becker-B. auto.
 Gear cutter, No. 24 Whiton, belt dr.
 Grinder, 12"x36" Cincinnati univ.
 Hack saw, 6"x8" Racine.
 Hammer, 2000 lbs. Chambersburg,
 double frame, steam forging.
 Hammer, 1100 lb. N. B. P., sgl. fr.
 Lathe, 15"x6" Rahn-Larmon, belt, q.c.
 Lathe, 18"x8" American.
 Lathe, 19"x8" Sidney heavy duty,
 belt drive, quick change.
 Lathe, 26"-48"x11" McCabe-3-in-1,
 belt.
 Lathe, 26"x20" Lodge & Shipley.
 Lathe, 30"x30" Harrington.
 Miller, Newton duplex, planer type,
 table 21"x12".
 Miller, No. 3 Becker universal, table
 12"x40".
 Miller, No. 4 Brown & Sharpe plain.
 Milling mchne., No. 3 Garvin duplex.
 Planer, 36"x36"x12" Cincinnati, 2 hds.
 Pipe machines, 2", 4", 6", 8" & 12"
 Oster, Cox, Williams, Eaton-Cole
 & Burnham and Jarecki makes,
 belt or motor driven, comp. stock.

113 N. Third St., Philadelphia, Pa.

Pipe machines, Oster portable, gas.
 drive, all sizes.
 Press, No. 73 $\frac{1}{2}$ Bliss trimming press.
 Press, No. 37 Niagara, 1100 lb. fly-
 wheel, solid back.
 Press, No. 123 Ferracute, geared,
 double acting, flywheel 475 lb.
 Press, DD3 Ferracute, dbl. acting.
 Punch, No. 51 Beloit, belt, capacity
 4"x8".
 Punch, No. 1 $\frac{1}{2}$ H. & J. 20" thrt. 4x4".
 Punch, No. 1 Royersford double end,
 4"x8".
 Punch and shear, 36" Hilles &
 Jones, cap. 1 $\frac{1}{2}$ "x1", belt drive.
 Punch and shear, 24" Southwark
 arch jaw, cap. 4"x4", motor drive.
 Saw, 20" Espen-Lucas, cap. 8".
 Shaper, 18" Cincinnati, one travel-
 ing head, 2 tables.
 Shear, angle, Type C Long & A.
 double, capacity 8x8x1 angles.
 Shear, Niles, plate splitting, 1" cap-
 acity, motor driven.
 Shear, 8" Covington, squaring, gap
 pattern, 4" capacity.
 Slotter, 10"-12" Dill, belt drive.
 Turret lathe, No. 6 Warner & Swasey,
 wire feed.

USED AND REBUILT MACHINERY

FOR SALE BY

Rosenfeld Machinery Co. . . . 942-944 W. Lake St., Chicago, Ill.

Broaching machine, No. 2 LaPointe (New London), with broaches.

Grinder, No. 10 Besly disc.

Milling machine, 1B Milwaukee, single pulley drive with vise.

Miller, Becker vertical, Model CS, rotary table.

Motors, $\frac{1}{2}$ h. p. to 100 h. p., a. c. and d. c.

Punch press, 1-4P style, solid back.

Shaper, 24" Ohio, motor drive.

Vises, 100 new Rock Island all sizes.

FOR SALE BY

Syracuse Supply Company. 314 W. Fayette St., Syracuse, N. Y.

Guaranteed new machines at prices below list:

Arbor, No. 54-B; K. & T. \$20.00.

Arbor press, Canedy-Otto No. 1 \$30.

Beaders and crimpers, P. S. & W.

Chuck, Simmons magnetic, 3 $\frac{1}{2}$ x10 $\frac{1}{2}$ ", \$200.00.

Drill, No. 9 Natco Minster.

Exceptional values in used tools:

Bolt threader, Acme 2-spindle \$125.

Boring machine, 18" Egan vertical.

Drills, Dreses 8" radial (2).

Generator, D. & E. Fuse Co. 115 volt, 550 watt.

Hammer, F-60 Syntron electric \$40.

Lathe, 16x6 Fitchburg.

Lathe, 16x10 Flather.

Drill, No. 1 Natco, compound table, arranged for belted motor drive.

Grinder, No. 1 Bath universal.

Jointer, 12" Whipp \$300.

Threading mch., No. 74 Forbes \$170.

Vise, No. 3 Royersford production.

Lathe, 18x10 Reed.

Lathe, 28x12 Draper.

Lathe, 24x26 Pratt & Whitney.

Miller, Wisconsin hand, \$125.00.

Rip saw, No. 2 $\frac{1}{2}$ Powers, self feed.

Screw machine, No. 2 $\frac{1}{2}$ Garvin auto.

Turret lathes, No. 4 Foster, (2).

Turret lathe, No. 6 Wood tilted tur.

FOR SALE BY

Brandt Machinery Company.

Bending rolls, 12"x1 $\frac{1}{2}$ " Brennan.

Bending rolls, 16"x $\frac{1}{2}$ " Niles, d. e.

Bending roll, 5"x1" Queen City, d. e.

Bending roll, 16"x1" Bertsch, d. e.

Bending roll, 12"x1" Niles, initial.

Bending roll, 10"x1" Cleve, d.e.m.d.

Bending roll, 20"x1" Niles, d. e.

Bending roll, 12"x1" H. & J., d. e.

Bending roll, 8"x1" Bertsch.m.d., d.e.

Bending roll, 10"x1" Wickes, d. e.

Bending roll, 10"x1" Cleve, d.e.m.d.

Bending roll, 10"x1" Cleve, d. e.

Bending roll, 14"x1" H. & J. d. e.

Bending roll, 18"x1 $\frac{1}{2}$ " Union i. w.

Bending roll, 25"x1" H. & J. m. d.

Bolt cutter, 24" Acme double spindle

Bolt cutter, 1 $\frac{1}{2}$ " dbl.-spindle Acme,

Landis heads.

Bolt cutter 24" Acme, single-spindle.

Boring mill, 60" and 72" Bullard.

Boring mill, 81" & 86" Niles, 2 hds.

Brake, 12"x $\frac{1}{2}$ " D. & K. all steel No. 227

Dozers, Nos. 4, 5, 26, 8, 29U,

Williams-White.

Crane, 10 t 50' Shaw 3-60-220 a. c.

Crane, 10 ton 50' Niles 3-60-220 a. c.

Crane, 5 t. 39' Bedford, 3-60-220 a. c.

Crane, 20 ton 25' Whiting, d. c.

We solicit your inquiries.

50 Penn Ave., Pittsburgh, Pa.

Crane, 20 ton 45' Shaw, d. c.

Crane, 5 ton 50' Morgan, d. c.

Crane, 3 t. 39' hand, or less, to suit.

Drill, 21" C-O, m. d. with motor.

Forging mch. 18", 20", 3", 4", 5" Ajax.

Forging mch. 1", 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ " Acme.

Flanging machine, 4" McCabe.

Grinder, 12x36 Modern, univ.

Grinder, 3 h. p. a. c., U. S. floor.

Lathes, 21"x8" LeBlond, q. c. g.

Lathe, 16"x6" L. & S. c. h. q. c. g., ck.

Lathe, 17"x10" Sidney, g. h. q. c. g., m. d.

Planer, 30"x30"x8" Flather.

Press, No. 59 $\frac{1}{2}$ Toledo, tie rod.

Press, No. 58 Toledo, tie rod.

Punch, 24" Cleve, e. f. 1 $\frac{1}{2}$ " thru 1".

Pipe machine, 8" and 10" Jarecki.

Pipe mch., 6" Jarecki, m. d., like new.

Pipe machine, 6" & 8" Landis.

Shaper, 32" Steptoe, cone, A1.

Shaper, 20" G. & E., cone.

Shear, 48"x1" Cleveland, A-1.

Shear, 96"x1" Morgan.

Shear, 2" & 3 $\frac{1}{2}$ " square Cleve, guill.

Shear, 1 $\frac{1}{2}$ " sq. H. & J., guill. type.

Shear, No. 4 H. & J., guill. type

3 $\frac{1}{2}$ " square.

What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

E. L. Klauber Machinery Co.,

Blowers, Sturtevant; Nos. 8, 9 and 10.
Drill, 4-spindle Henry & Wright.
Drill, Demco d. b., hi-speed \$145.
Drill presses, 10" to 34".
Drop press, 200 lbs. power lift.
Grinder, No. 12 Modern plain cyl.
Grinder, twist drill, American.
Grinder, Taylor wet tool.
Lathe, 9x14 Porter-Cable.
Lathe, 13x6 Seldon.
Lathe, 18x6 Rahn-Larmon.
Lathe, 16x8 Rahn-Larmon \$175.
Lathe, 30x14 Bradford; \$475.
Milling machine, No. 4 Cincinnati plain, all geared, single pulley dr.
Milling machine, No. 4 B. & S. pl.
Press, Toledo horning.
Saw, Peerless 6x6 hi-speed.

320 South Third St., St. Louis, Mo.

Saw, Racine 6x6 hi-speed.
Screw machine, Gridley 14", 4-sp.
Screw machine, No. 0 Brown & Sharpe automatic.
Screw machine, Wood tilted turret, geared friction head, p. f. t.
Screw machine, No. 56 National Acme 4-spindle automatic.
Shaper, 12" Juengst.
Shaper, 12" Hendey \$150.
Shaper, 16" Smith & Mills \$185.
Shaper, 20" Gould & Eberhardt.
Square shear, power, 74" light \$180.
Tapping machine, No. 4 St. Louis.
Tapping machine, No. 6 St. Louis.
Tapping machine, Rickert-Schafer.
Tapping mch., No. 1 Garvin auto.
Welder, spot; National 25 k. w.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

DRILLS.

1-spindle Avey.
2-spindle Allen.
3-spindle Avey.
8-spindle Bausch.
14" Mason high speed.
20" Champion.

22" Barnes back geared.
25" Barnes back geared.
32" Prentice sliding head.
5' arm American radial.
5' arm Niles half universal radial.

LATHES.

14"x10' Lodge & Shipley, q. c. g.
18"x 8' Lodge & Shipley, q. c. g.
24"x10' LeBlond.

24"x12' Boye & Emmes q. c. g.
30"x13' H. S. & G., q. c. g.

BORING MILLS.

Niles horizontal, 4".
34" Gisholt turret vertical.
42" Bullard, 1 turret, 1 plain head.
36" Niles, 2 heads.

60" Morton Poole.
No. 1 P. & H. boring and drilling machine.

SHAPERS AND PLANERS.

12" G. & E. crank shaper.
16" Smith & Mills shaper.

32" Cincinnati shaper.
42"x42"x26' Wheeler planer.

GEAR CUTTERS.

26" Brown & Sharpe.

26" Cincinnati.

MILLERS.

No. 14 Kempsmith plain.
No. 5-B Brown & Sharpe sgl. pul.
No. 3 Rockford hand.

Hendey Lincoln.
No. 2 LeBlond universal.

SCREW AND TURRET MACHINES.

No. 6-A Potter & Johnston.
No. 2 Warner & Swasey hollowhex.
No. 2 Warner & Swasey screw mch.
Wood turret lathes.

No. 6 Warner & Swasey.
3"x36" Jones & Lamson.
No. 00 Brown & Sharpe automatic.

PIPE AND BOLT THREADER MACHINES.

2" Bignall & Keeler pipe machine.
6" Jarecki pipe machine.
6" Bignall & Keeler pipe machine.

8" Williams pipe machine.
14" Standard bolt threader.
3" Acme bolt threader.

MISCELLANEOUS.

Bar shear, 5" x 1".
Bevel shear, 4" Lennox.
Hammer, 60 lb. Bradley helve.
Punch, No. 14 W. W., 12" throat.

Punch, 26" throat, 4" in 4".
Riveter, 4" Shuster.
Saw, No. 17 Higley cold.
Tapper, auto., Rickert & Schafer.

USED AND REBUILT MACHINERY

FOR SALE BY

Surplus Material & Machinery Co.
8735 Kercheval Ave., Detroit, Mich.

BENDING BRAKES.

A brand new 12 ft., 18 gauge Chicago hand bending brake; also good used Robinson No. 17, 8 ft., 10 gauge power brake. Both at special bargain prices.

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Cold saw, No. 4 Nutter & Barnes.
Die filer, No. 3 Barry.
Drill, 14" Leland h. s., tapping att.
Drill, 4-spindle Fox, $\frac{3}{4}$ " cap.
Drill, 6-spindle Henry & W. h. s.
Grinder, disc, 20" Ransom.
Lathe, No. 3 Cataract with turret.
Lathe, No. 4 Cataract (bench).
Lathe, 9x20" Porter-Cable prod.

Lathe, 12" x 8' Pratt & Whitney.
Lathe, 14" x 6' Hendey q. c. g.
Lathe, 14" x 8' Champion q. c. g.
Milling mch., No. 1 Garvin univ.
Pipe machine, No. 64 Merrill.
Planer, 24" x 24" x 6' American.
Shaper, 16" Steptoe b. g.
Shaper, 20" Ohio h. d., b. g.
Shear, No. 14 Pettingell rotary.

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.
LATHES.

56" x 18' Pittsburgh triple geared.
30" x 16' Niles-Bement-Pond, l. c.
30" x 14' Prentice q. c.
27" x 14' Pond, q. c.
21" x 12' LeBlond, q. c.

19" x 10' LeBlond q. c.
20" x 8' Whitcomb-Blaisdell, grd. hd.
18" x 8' Cincinnati, q. c.
18" x 8' Mueller q. c.
17" x 8' LeBlond, q. c., taper.

MILLING MACHINES.

No. 3 LeBlond plain.
No. 3 Cincinnati, single pulley.
No. 4 Brown & Sharpe sgl. pulley.
No. 4 Cincinnati universal.
Bickett No. 1 vertical.

No. 2 Cincinnati universal.
No. 4 Cincinnati vertical.
No. 2 Cincinnati vertical.
Owen two-spindle.

BORING

24" Bullard rapid prod. New Era hd.
34" Bullard New Era.
36" Niles, 2 heads.
42" Niles-Bement-Pond, 2 heads.

MILLS.

10-16' Niles, 2 heads.
Rudolph & Krummel horizontal.
Niles horizontal.
31" Niles, 2 heads.

PLANERS.

24" x 24" x 8' Ohio.
24" x 8' Pond, 2 heads.
24" x 8' Putnam.
30" x 16' Gray, 2 heads.

48" x 16' Detrick & Harvey open side.
48" x 10' Belmer, 4 heads.
30" x 6' Gray.
26" x 8' American.

DRILLS AND RADIALS

2 and 3-spindle Henry & Wright.
4 and 2-spindle Sipp.
1 and 2-spindle Kokomo hi-speed.
No. 310 Baker heavy duty.
Foote-Burt heavy duty.
6' and 8' Americans, single pulley.

5' American, triple purpose.
4' Mueller, single pulley.
4' Morris, with motor.
4' Roos & Mill, single pulley.
20" to 38" uprights.

MISCELLANEOUS.

Bulldozer, Williams-White.
Compressor, 13 8/10 Worthington.
Gear hobber, Farwell No. 2.
Gear hobber, Farwell No. 3.
Grinders, Norton & Modern cyl.
Grinders, disc No. 120 Gardner.
Grinder, Bryant internal.
Grinders, planer type Brown & S.
and Springfield.

Press, 20 ton Lourie hydraulic.
Punch and shear No. 3 H. & J. d. c.
Rolls, 7' long, $\frac{1}{2}$ " capacity.
Slotted, 20" Dill.
Turret lathe, 21" Gisholt, motor.
Turret lathe, No. 4 Warner & S.
Turret lathes, 64" Gisholts, with
motor.

USED AND REBUILT MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., 3 Fox St., Bridgeport, Conn.

Chucking machines, 1x5 New Britain, arranged for motor drive, lot of extra equipment, very good shape, can be seen under belt. (3) price each.	600.
If the three are taken, price for the lot.....	1,500.
Screw machines, multiple spindle, Davenport with tooling and equipment, (3), price for the lot.....	3,750.

FOR SALE BY

Miles Machinery Co.,

Automatic, 14" Fay.
Compressor, 8"x8" Bury.
Drill, upright, 25" Weigel.
Drill, radial, 3" American.
Drill, radial 6" N.-B.-P. universal.
Drill, 20" Leland-Gifford.
Gear hobsers, 12", 18"x24" G. & E.
Grinder, surface, No. 10 Blanchard.
Grinder, crank, 16"x48" Landis.
Grinder, 6"x18" Landis.
Hammer, 150 lb. Bradley.
Lathe, 12", 14" & 18" Hendey.
Lathe, 10", 16", 18" & 20" Cisco gd. hd.
Lathe, 50" x16" Pittsburg.
Lathe, turret, 24" & 36" Bullard.

Saginaw, W. S., Mich.

Mult-au-matic, 14" Bullard.
Millers, Nos. 2, & 4 Cincinnati, vert.
Miller, 40" Ohio tilted rotary.
Planer, 72"x60"x14" Cleveland o. s.
Planer, 36"x36"x12" Cincinnati.
Planer, 30"x30"x8" Cleveland opens.
Press, No. 6 Adriance o. b. i.
Press, No. 205C Toledo, dbl. crank.
Press, No. 165 Toledo, toggle.
Riveters, 2A, 3A & 5A high speed.
Shear, 62"x16 ga. Niagara gap.
Shear, 4" Kling plate.
Threaders, 2", 2½" & 3" Acme.
Upsetter, 1½" Acme.

FOR SALE BY

Brownell Machinery Co.,

36" Bullard New Era
3' Prentice Bros. plain radial.
4-spindle Dwight slate.
No. 1 Brown & Sharpe surface.
C-2-T Grand Rapids twist drill.
30"x20" Fitchburg.
24"x16" LeBlond q. c. g.
24"x12" Whitcomb-Blaidsell q. c. g.
Newton adjustable rail, 30"x24"x8", two vertical spindles.
No. 1 Kempsmith universal.
No. 13-B Brown & Sharpe plain.
60"x60"x16" Niles-B.-P., 4 heads.
60"x84"x16" Gray spur gear, 4 heads.
36"x36"x10" Whitcomb, one head.

150 Pine St., Providence, R. I.

BORING MILLS.

42" Bullard vertical.

DRILLS.

4-spindle Bausch.

No. 2 Langelier bench h. s., b. b.

GRINDERS.

20" Blount wet tool.

14" Blount wet tool.

LATHES.

16"x8' Reed, q. c. g., taper.

12"x4' Greenfield motor driven speed lathe, 230 v. d. c.

MILLING MACHINES

Model AB Becker vertical, s. p. d.

No. 2-Y Brown & Sharpe plain.

No. 0 Brown & Sharpe plain, rack feed.

PLANERS.

17"x17"x 6' Whitcomb, one head.

17"x17"x 4' Whitcomb, one head.

POWER HAMMERS.

90 lbs. Bradley cushioned helve.

ROLLING MILLS.

12"x20" toggle.

SCREW MACHINES & TURRET LATHES.

16" Warner & Swasey 1".

No. 0 B. & S. hand.

MISCELLANEOUS.

Surface planer, 24"x5" Woods.

Threading lathe, automatic 18x6.

Band saw, metal cutting, H. & R. 12".

Gear cutter, No. 13 Brown & Sharpe.

USED AND REBUILT MACHINERY

FOR SALE BY

Foster Machinery Company,

Brake, 6', 10 ga., box and pan
Draw bench, 12' Waterbury-Farrell.
Hoists, elect., 3, 5 & 10 ton Euclid.
Press, No. 38 P Toledo geared.
Punch, Long & Alistetter 24" thrt.,
arch. jaw.

2613 E. 73rd St., Cleveland, Ohio

Riveters, Nos. 2-A and 3-A High
Speed.
Riveters, air, 30 ton & 50 ton Hanna
12" throat
Shear, 12'x14 ga. Loy & Nawrath.
Upsetter, 24" Acme (steel).

FOR SALE BY

United Mchry. & Supply Co.,

Bolt cutter, 3" National.
Bulldozer, Williams & White U-29.
Compressor, 10x8 Chgo. Pneumatic.
Drill & tap. mch. camelback, m. d.
Hammer, small upright, helve.
Miller, No. 5 Brown & Sharpe vert.

1241 Walton St., St. Louis, Mo.

Milling machine, Knight.
Punch press, gang, No. 4 L & A.
Rolls, 7"x7" diameter H. & J.
Sand mixer, International 8' pan.
Saw, friction, Ryerson 45" m. d.
Shear, Lenox splitting, 1" capacity.

FOR SALE BY

Severin Machinery Corporation,

50"x36' Pittsburgh, d. c. drive.
42"x36' Niles, b. d.
36"x32' Putnam, geared head.
SHEARS, PUNCHES, BRAKES,
2-H. & J. roller levellers.
1-No. 35 W. & W. gate shear, 50"
between housings.
1-No. 4 H & J. hor. punch & bender
BORING MILLS, HORIZONTAL.
1-53" Niles late type vertical.
1-54" Gisholt vertical.
1-60" Niles-Bement-Pond vertical.
1-8" Niles vertical.

MISCELLANEOUS.
Bins, 115 ton capacity Blaw-Knox
batchers.
Blower, 10" General Electric.
Bucket, 1½ yd. Hayward clam shell.
Crane, 60' span Box hand power 15
ton capacity.

30 Church St., New York, N. Y.

LATHES.

36"-60"x12' Harrington gap.
26"-44"x18' McCabe double-spindle.
2x24 Jones & Lamson turret.
SHAPERS AND STRAIGHTENERS.
1-10' Geo. Ohl shear.
1-Small flat wire straightener.
1-10' 6" Ohl power brake.
2-W. & W. big beam punches.
HORIZONTAL AND VERTICAL.
1-10' Niles vertical.
1-12' Betts vertical.
1-3" Fosdick horizontal b. and d.
1-24" Niles, horizontal b. and d.

MISCELLANEOUS.
Forging machine, 3" Ajax all steel.
Miller, No. 3 Cincinnati vertical.
Shaper, 16" Davis, gear box, single
pulley.
Shaper, 24" Stockbridge, hvy. duty.
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B-3091—Bradford 18"x8" Quick Change Gear Engine Lathe.
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B-493—Brown & Sharpe No. 3 Heavy Automatic Gr. Cutting Machine.
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B-2704—Gleason 24" Bevel Gear Planer, single tooth.
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Milling Machines —

Kinds of Machine Tools — Your Requirements

SHAPERS—(Continued)

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- 6-20-22" x8' American.
- 1-20 x16' Monarch.
- 2-20" x 8' Cisco.
- 11-19" x8' LeBlond.
- 2-18" x12' Reed-Prentice, Gd. Hd.
- 1-16" x12' Monarch.
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- 1-No. 3 Cincinnati-Acme Univ.
- 2-No. 6 Brown & Sharpe.
- 2-No. 2-A Warner & Swasey.
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- 1-6' Western Heavy.
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- 1-No. 14 Natco Mult.
- 1-No. 26 AC Fox Mult.
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- 5-No. 2-4-spindle Colburn.
- 1-6-spindle H. & W.
- 4-4-spindle Henry & Wright.
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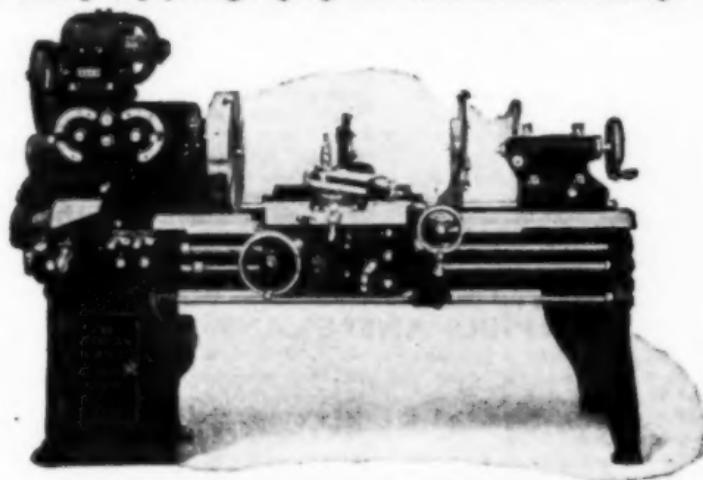
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No. 2-B Milwaukee Plain, s. p. d.
No. 2-G LeBlond Pl., single pulley dr.
Nos. 3, 2 & 1 1/2 Cincinnati Pl., cone pul.
Nos. 3, 2 & 1 Kempsmith Pl., cone pul.
Nos. 3, 2-H & 1 1/2 Brown & S. Pl., c. p.
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20^o Milwaukee heavy duty, b. g. crank.
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16^o Hollingsworth hvy. duty, b. g. crank.
16^o Smith & Mills crank.
24^o Cincinnati crank planer, 1 head.
24^o x 24^o x 10^o Liberty planer, 1 head.
30^o x 30^o x 10^o American planer, 1 head.
33^o x 33^o x 8^o Ohio planer, 2 heads.
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Plain, single pulley, gear box drive.
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5^o Cincinnati-Bickford Plain, s. p., g. b.
4^o Cincinnati Bickford Plain gear box dr.
4^o Fosdick Plain, gear box drive.
4^o Hammond jack knife type, h. s., b. d.
4^o Dresses Plain, single pulley.
4^o & 2 1/2^o Morris Plain, gear box drive.
3 1/2^o & 3^o Western Plain, gear box drive.
3^o American b. b. Sensitive.
2 1/2^o Carlton B. B. Sensitive.
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Nos. D-3 and D-4 Colburn Heavy Duty.
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Leland & G. I & 2-sp. b. b., No. 2 M. T.
1, 2, 3, & 4-sp. Allen b. b. No. 2 M. T.
1 & 2-sp. Avey b. b., No. 2 Morse Tap.
Fosdick 1 & 2-sp. b. b., No. 2 M. T.
Sipp 3-spindle b. b., power feed.
No. 10 Foote-Burt 3-sp. H. D. rail drill.
No. 2 Avey 4-sp. b. b., p. f., No. 2 M. T.
No. 220 Baker 2-spindle, Heavy Duty.
4-sp. Leland & Gifford b. b. pwr. feed.
4-spindle 22 1/2^o Barnes Heavy Duty.
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Bor. Mill, 42", 36" & 24" Bullard Vert.
Boring Mill, 24" Bullard Rapid Prod.
Bor. Mill, 42" Bausch Vert., 2 hds., p.r.t.
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36" x 16" Lodge & S. Selective Hd., q. c.
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Presses, Nos. 1, 3, Cons. O. B. I. Pwr.
Press, No. 33 Toledo Upright.
Press, No. 91-D Toledo Double Crank.
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42" x 38' Lodge & Shipley Selective Head Triple Geared Lathe, arranged with A. C. motor, actual swing 46½", takes between centers tailstock flush 29' 11", power angular feed to compound rest, taper attachment, triple gearing into face plate; machine in excellent condition, including motor.

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- 1—4½" x 12" Pratt & Whitney Thread Milling Machine.
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- 1—6x32 Norton Plain Cylindrical Grinder.
- 1—28" Cincinnati Drill Press B. G. Sliding Head. Positive geared power feed.
- 1—20" Barnes Camel Back Drill Press.

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50"x16' Niles Engine Lathe, Triple Geared, 8' Centers.
42"x26' Niles Engine Lathe, Triple Geared, 18' Centers.
36"x22' Pond Engine Lathe, Triple Geared, 15' Centers.
30"x14' Lodge & Shipley, Quick Change, 9' Centers.
26"x20' Bridgeford, Quick Change, Heavy Type, 14' Centers.
18"x36"x20' Rahn-Larmon Sliding Bed Gap Engine Lathe.
10' Niles Vertical Boring Mill, Heavy Type, Motor Drive.
76" Bullard Vertical Boring Mill, Belt or Motor Drive.
61" Bullard Vertical Boring Mill, Belt Drive, Heavy Type.
36" Bullard Vertical Turret Lathe, Single Pulley Drive.
5" Dia. Bar, Beaman & Smith, Horizontal, Floor Type.
4" Dia. Bar, Betts, Horizontal Knee Type.
54"x54"x12' Gray Planer, 2 Rail Heads, 1 Side Head.
36"x36"x12' Gray Planer, extra Heavy 4 Heads.
26"-24"-16" Gould & Eberhardt, Crank Shapers.
20" Stroke Dill Slotter, Gear Box, Motor Drive.
6' American Radial Drill Gear Box, Belt or motor.
3' Cincinnati Bickford Radial Gear Box, Belt or Motor.
No. 25 Foote Burt, High Duty, Vertical Drill Press.
No. 12 Minster, High Duty, Vertical Drill Press.
No. 3 Cincinnati Universal Milling Machine Complete.
No. 2 Garvin Universal Milling Machine Complete.
No. 4 Cincinnati Plain Milling Machine Complete.
No. 3 Brown & Sharpe Plain Milling Machine Complete.
8' 6' OHL Power Press Brake Cap. No. 10 Gauge.
No. 5 Hilles & Jones Single End Punch and Shear.
No. 3 Hilles & Jones Double End Punch and Shear.
60' Newark Automatic Spur Gear Cutter, Single Pulley.

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- 1-8x60 Lo-Swing.
- 1-12"x 8' Sidney.
- 1-13"x 6' Pratt & Whitney.
- 1-14"x 6' Lodge-Shipley.
- 2-14"x 6' Seneca Falls.
- 1-14"x 6' American.
- 1-16"x 6' Monarch.
- 1-16"x 6' American.
- 1-16"x 6' Springfield Tool Room.
- 2-16"x 6' LeBlond.
- 1-16"x 8' Monarch.
- 1-16"x 8' Springfield.
- 1-16"x16' Greaves-Klusman.
- 2-17"x 6' LeBlond.
- 1-17"x10' LeBlond.
- 1-18"x 8' LeBlond.
- 1-18"x 8' Lodge-Shipley.
- 1-18"x12' Lodge-Shipley.
- 1-20"x12' LeBlond.
- 1-20-42"x6' Fay-Scott Gap.
- 1-24"x10' LeBlond.
- 2-24"x10' Reed.
- 1-25"x10' LeBlond.
- 1-25-41"x18' Harrington Gap.
- 2-26"x12' Niles-Bement-Pond.
- 1-28"x18' Schumacher-Boye.
- 4-30"x12' American Geared Head.
- 1-39"x20' American Geared Head.
- 1-36"x14' Bridgeford, Motor Dr.
- 1-42' N-B-P Double End Wheel.
- 1-42"x24' N.-B.-P., Motor Drive.
- 1-42"x30' Putnam Motor Drive.
- 1-48"x14' Pond, Motor Drive.
- 1-50"x34' Pittsburgh.
- 1-50"x36' Pittsburgh.

SHAPERS & SLOTTERS

- 1-6' Pratt & Whitney.
- 1-16' Stockbridge.
- 1-16' Milwaukee.
- 1-20' American.
- 1-20' Kelley.
- 1-20' Steptoe.
- 1-24' Hendey Shaper.
- 1-24' Stockbridge Motor Drive.
- 1-24' Steptoe Shaper.
- 1-15' Newton.
- 1-15-18' Dill Slotter.
- 1-18' Dill.

- 1-20' Bement.
- 1-22' Bement-Miles.

BORING MILLS

- 1-No. 35 Landis Horizontal.
- 1-No. 3 Univ. Horiz. Precision.
- 1-No. 0 Bement Horizontal.
- 1-No. 0 D-Harvey 3½" bar.
- 1-60" N-B-Pond Horiz. Duplex.
- 1-No. 3 Betts Horizontal.
- 1-44" Bar N-B-Pond Floor Type.
- 1-54" Bar Niles Floor Type.
- 1-No. 3 Barret Horizontal.
- 1-Espen Lucas 6" bar Horizontal.
- 1-Newton 7" bar Horizontal.
- 3-24" Bullard Rapid Prod. Vert.
- 1-34" Bullard Vertical.
- 1-34" Colburn Vertical.
- 1-42" Bullard Rapid Traverse.
- 1-42" Gisholt Rapid Traverse.
- 1-44" Putnam Rapid Traverse.
- 2-44" N-B-Pond Rapid Traverse.
- 1-54" Gisholt Rapid Traverse.
- 1-60" Colburn Rapid Traverse.
- 1-62" N-B-Pond Rapid Traverse.
- 1-72" Niles Vertical.
- 1-96" N-B-Pond Motor Drive.
- 1-96" Betts Vertical.
- 1-100' Sellers Rapid Traverse.
- 1-10-16' Niles Rapid Traverse.
- 1-10' Niles Vertical.
- 1-12' Niles Rapid Traverse.
- 1-14' Niles Rapid Traverse.

TURRET LATHES & SCREW MCHS.

- 1-18x9 Acme.
- 1-18x18 Pratt & Whitney.
- 1-2x26 Jones & Lamson Turret.
- 7-2x26 Pratt & Whitney.
- 2-2x26 Acme Flat Turret.
- 3-3x36 Pratt & Whitney.
- 1-4x20 Bardons Oliver.
- 3-18" Libby Turret.
- 2-No. 2-A Warner & S. Turret.
- 1-No. 3-A Warner & S. Turret.
- 1-No. 6 Wood Tilted Turret.
- 4-No. 4 Warner & Swasey Univ.
- 8-No. 4 Warner & Swasey Turret.
- 1-No. 4 Bardons & Oliver Turret.
- 2-No. 6 Warner & Swasey Turret.

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Toledo Grd., No. 3-A Bliss Adjust. Bed; No. 16 Bliss Hor. Pr.
Rock River Sgl. End Punch, 16" thru., arch. jaw, cap. 1" thru 1".
Style EF Cleveland SE 24" throat, cap. 1 1/4" thru 1", arch. jaw.
No. 2 Hilles & Jones SE, 20" throat, cap. 1" thru 3/4", rapid action MD.
Long & Allstatter Single End Punch, 48" throat, cap. 2 1/4" thru 1".
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New Doty Guillotine Shear, cap. 3 1/2" round, MD.
RFV 30 Pels Bar and Angle Shear, cap. 3" rd., 7x7x3/4" angles.
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Thread Rollers 3/8", 1/2" and 3/4" capacity.
Pipe Threaders, Williams 8"; Saunders 4", Crane 10".
Thread Rollers, Cold Headers and Bolt Trimmers, Bolt Pointers,
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20" Gould & E. Crank b. g.	725.	16" Smith & Mills open belt dr.	100.
17" Smith & Mills spiral bull gr.	300.	16"x16"x56" Lee Tool Room	
16" Gould & E. Crank b. g.	625.	Planer, p. f. to rail & head...	200.
16" Hamilton Crank, b. g.	450.	10"x12"x24" Hendey Bench...	200.

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25" Superior, s. h. d. b. g.	250.	4-spindle Kern b. b., 1" cap...	425.
26" Prentice, slid. hd., tap. att. vise table, single pulley dr.	350.	4-spindle Barnes all geared...	575.
22" Snyder sliding hd. b. g. p. f.	150.	4-spindle Allen b. b., 1" cap...	550.
20" Fairbanks b. g., pwr. feeds	90.	6-spindle Kern b. b., 1" cap...	575.
2-sp. Rockford Sensitive (2) ea.	150.	No. 30 Natco arr. 34-sp., r. h.	2750.
14" Caudy Otto sliding head, motor driven, Timken Bearings (new)	125.	Gisholt Cutter Grinder.....	95.

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10"x50" Norton Plain	\$ 875.	5"x14" Greenfield hydraulic	\$ 250.
10"x72" Landis pl. self-cont.	1250.	6"x18" Landis Plain, s.-con...	525.
10"x72" Brown & Sharpe Pl.	850.	P. & W. Vert. Sur. tbi. 12"x40"	875.
6"x32" Norton Plain (2), each	350.	24" Ransom 5 h.p., m.d. Snag	150.
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5—No. 1-M Gorton Universal Engraving Machines, self-contained, Paste reduction is 3 to 1 only, for cutting and lettering tire moulds, rings and other heavy work, motor driven, machines in excellent condition—a real buy at \$1,350 each.

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J. & L. Turret, Barker Chuck	300.	serial over 18,000 (2) ea.....	650.

MILLING MACHINES

No. 4 LeBlond Pl., all hrd. fds.	\$ 850.	No. 12 B. & S. Prod., (2) ea....	\$ 250.
No. 3 LeBlond Plain, arr. m.d.	675.	No. 6 Becker Vertical, sl. hd...	1200.
No. 3 LeBlond Pl., all grd. fds.	525.	No. 5 Becker Vert., sl. hd.....	750.
No. 24 LeBlond Univ., all grd.	650.	No. 4 Garvin Profi. mtr. dr. (5)	300.
No. 18 American Plain all grd.	375.	30"x30"x12" Ingersoll Hor. Sp.	800.
No. 1 Kearney & T. pl. s. p. d.	525.		

MISCELLANEOUS

Robbins 2" Pipe Mch., m.d.	\$ 200.	No. 1 Baker Keyseater 14" cap.	275.
Curtiss 1" to 6" Pipe Machine	250.	No. 3 B. & S. Gr. Cut. 36" cap.	250.
18"x18" Platen Hydraulic Press	100.	No. 1 Farwell Gear Cutter.....	150.
No. 6 B. & S. Gear Cutter 60"	1350.	1" Garvin Hor. Tapper.....	125.
No. 6 Fellows Gear Shaper....	250.	No. 6 Amer. Pressure Blower.....	150.
4" Shuster Riveter & Spinner..	100.	Dwight Slate Marking (2) ea.	75.
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- 1—Rivett Univ. No. 6 Internal.
- 2—Landis No. 3 Universal.
- 3—Bryant Chuck. Nos. 6 & 15A.
- 1—Besly No. 17 double end.

Lathes—Engine—Miscellaneous

- 1—Carroll & J. 14x8, Q. C.
- 1—Hamilton, 16x6, B. G., Q. C.
- 5—Lodge & Shipley 16x6, 18x8, 20x10, 22x10, B. G., Q. C.
- 1—Sidney 20x10, B. G., Q. C.
- 2—LeBlond 17x12, 21x12, B.G.
- 5—Greaves & Kluman 18x6, 18x8, 30x8, B. G., Q. C.
- 2—Chard 16x6&24x11B.G., Q.C.
- 1—L. & S. Duplex 12x24" Cr. Pin.
- 4—American 14x6, 16x6, 18x8.
- 1—G. & L. 18x8 B. G., Q. C.
- 1—14"x8" Carroll & Jamieson.
- 1—Sidney 14x6" B.G., Q.C., T.A.
- 1—Bradford 16" B.G., Q.C., T.A.
- 1—Monarch 16x6 B. G. Q. C.

Lathes—Turret and Screw Mch.

- 2—Foster No. 1-B—20" swing.
- 2—Gisholt No. 2, D. M. D.
- 2—Gisholt No. H21.
- 1—Warner & Swasey No. 6.
- 2—Millholland 1" & 1½" D. M. D.
- 2—Pratt & Whitney 20".
- 1—B. & O. No. 4.

Milling Machines—Vertical

- 1—Becker No. 5.

Milling Machines—Horizontal

- 1—Milwaukee No. 3B, d. o. v. h.
- 3—No. 2 Cincinnati Universal.
- 1—Brown & Sharpe No. 3.
- 1—LeBlond No. 4 Plain.
- 1—Hendey No. 2 Universal.
- 1—Brown & S. No. 12.
- 1—Steptoe Hand with Ven. Att.
- 6—Whitney No. 6 Hand.
- 1—Garvin No. 14.
- 5—Standard Hand.

Milling Machines—Slab

- 1—Ingersoll 30x30x10", 3 heads.

Presses—Punch

- 2—No. 14 Williams-White.
- 1—McDonald No. 4 O. B. I.
- 2—Consolidated No. 4 O. B. I.
- 1—Marshalltown No. 3 O. B. I.
- 1—Bliss No. 2 O. B. I.

Saws

- 1—Peerless 6x6.
- 1—Egan 36" Band.
- 1—Robertson 4x4 Hack.

Screw Machines—Automatic

- 1—New Britain No. 24 Mukt. spdl.
- 4—Gridley ¾" 4-spindle.
- 1—Cleveland 2" S. S.
- 6—National Acme Nos. 51, 53 and 55 Multiple spindle.

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- 1—Whipp 16" Crank.
- 1—Steptoe 24".

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- Boring Mill, Bullard 42" Vertical.
- Broach, LaPointe No. 3 M. D.
- Coiling & Cutting, Baird No. 2.
- Generator Sets, (3).
- Motor, 190 H. P. Synchronous.
- Welders, Toledo Spot; Federal Spot; Type B Arc.

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Bath-Cleveland

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5" bar Niles horiz.
4" bar Bement table type, hor., m.d.
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60" Gisholt, arranged motor drive.

10-16" Niles & Bement-Miles ext.
16-24" Niles extension type.
14" Niles.
96" Betts vertical, geared feed.

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6" American triple purpose.
22" Barnes, sliding head.
24" Silver, sliding head.

24" Superior, sliding head.
4-spindle Foote-Burt.
6-spindle Moline cylinder borer.

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1", 1" 2" 3" Acme and Ajax upsetters.
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1" x 3" Manville & 1" x 4" Waterbury-
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1", 1" and 1" National bent nut
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1" W.-F. cold pressed nut machines.
1" Rickett-Shafer tapper.
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1" Landis 3 head bolt cutter, motor
drive.
5/16" four-slide wire formers.

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10"x24"; 10"x52" Landis self-cont.
10"x22" Greenfield cutter grinder.

72" G. & E. gear cutter, arr. m. d.

LATHES AND TURRET LATHES

16"x 8' Monarch, quick change.
17"x 8' Sidney, quick change.
3"x36" Jones & Lamson, grd. hds.

18" Libby geared heads.
24" Gisholts, belt drive.

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Type B Briggs, Lincoln 54x11 1/2" bbs.
20"x7"x18" Oesterlein plain.
No. 0 Rockford, 30"x3" table.
No. 1 Kempsmith 22"x8"x19" plain.
No. 3 Brown & Sharpe, vertical.

No. 6 Becker vertical.
Model B Becker vertical.
38"x10" Newton duplex miller.
No. 2 Baker Bros. keyseater, auto-
matic feed.

PLANERS AND SHAPERS

42"x48"x16" D. & H. o. s., rev. m.d.
60"x96"x20" D. & H. o. s., extra hous.
48"x72"x22" D. & H. o. s., extra hous.
48"x48"x16" Cincinnati, 4 heads.

72"x72"x20" Ridgway, 4 heads.
96"x96"x16" Pond, 4 heads, belt dr.
96"x96"x18" Ridgway, motor drive.
36" Morton draw cut shaper.

MISCELLANEOUS

Blowers, No. 1 Buffalo Forge.
Brake, 10"x5/16" Ohl bend arr. m.d.
Cold Saw, No. 4B Cochrane-Bly,
motor drive.
Pipe Machine, 4" Oster.
Press, Arbor, No. 3 1/2 Greenerd.

Press, No. 5 Consolidated inclinable.
Riveter, 30 ton Hanna, 6" gap.
Rolls, Reclaiming, Ajax, with
Rockwell furnace.
Slotters, 20" and 36" Bement crank.
Slotted, 48" Niles-Bement-P. grd.

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- 1—No. 24 New Britain Chucking Machine.
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- 5—Porter-Cable Lathes.
- 2—Sundstrand Lathes.
- 1—No. 1 LeBlond Tool Grinder.
- 1—4-spindle Rockford Drill
- 1—3-spindle Rockford Drill.
- 1—12x6 Seneca Falls Lathe.
- 1—10x24 Norton Grinder.
- 1—10x36 Norton Grinder.
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- 1—40" Ohio Tilted Table Mill.
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- 1—Fox Superflex Press.
- 2—No. 772 Frasier-Arter Automatic Grinders.
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NEW TOOLS

No. 2 Edlund Double Column Upright Drill.

No. 2 Wood Tilted Turret Lathe, friction geared head.

USED TOOLS

LATHES

16" x 8" Hamilton, Single Back Gear.

18" Gisholt Turret, Cone Drive.

2 1/4" x 24" Jones & Lamson Flat Turret, Geared Head

FLANERS

*42" x 36" x 26" "American" 4 Heads.

*48" x 48" x 26" "American," 4 Heads.

72" x 60" x 31" Pond, 2 Heads.

DRILLS—RADIAL

*3" "American" Sensitive.

*4" 4" "American" Sensitive.

4" Bickford, Cone Drive.

*5" Niles-Bement-Pond, round column, semi-universal, S. P. D.

5 1/2" Pond, Cone Drive.

6" Prentice, Cone Drive.

*7" Bickford, Triple Geared, Single Pulley Drive.

SCREW MACHINES

2 1/8" Gridley Single Spindle Automatic, motor driven.

MILLING MACHINE

No. 40 Becker-Brainerd Duplex.

GRINDERS

No. 10 Bryant Semi-Automatic Hole Grinder.

No. 22 Brown & Sharpe Internal Grinder.

GEAR CUTTERS

No. 3 Brown & Sharpe Automatic (for gears up to 26" x 8") (3).

SLOTTER

48" Bement Heavy, motor driven (almost new).

MISCELLANEOUS

No. 3-B, J. N. LaPointe Broaching Machine.

(* Can be motor driven.

The American Tool Works Company

Cincinnati, Ohio, U. S. A.

Builders of Highly Productive Lathes, Radials, Shapers

Guaranteed Machine Tools

AUTOMATIC SCREW MACHINES.

1- $\frac{3}{4}$ " Cleveland Automatic	850.
1- $\frac{3}{4}$ " 4 Spindle Gridley	\$ 850.
1-No. 2 Brown & Sharpe	450.
1-No. 33 New Britain	1450.
1-No. 53 National-Acme	600.
2- $\frac{1}{2}$ " Gridley 4-spindle	1100.
2- $\frac{3}{4}$ " single spdl. Gridley	600.
2-No. 6A Potter & Johnston	650.
1-No. 7A Potter & Johnston	750.

VERTICAL AND HORIZONTAL BORING MACHINES

1-Bement-Miles, 5 $\frac{1}{4}$ " bar.	\$3750.
1-24" Bullard side-head	1750.
1-42" Bullard, 2 heads	775.

DRILLS

1-24" Prentiss, sliding hd.	\$ 150.
1-4 Spindle Taylor & Fenn	200.
1-3" Dresses Radial, S. P. D.	1250.
1-5" Niles-B.-P. Univ.	750.
1-5" Prentiss Radial	750.
1-6" Prentiss Radial	500.
1-6" Baush Radial	500.

GRINDERS

1-10"x36" Norton	\$ 550.
1-10"x36" Landis	650.
1-No. 2, B. & S. Surface mag. chuck	400.
1-No. 12 Brown & S. Plain	750.
2-No. 2 Norton Univ. Tool	250.
1-10"x18" Norton	
2-10"x24" Norton, NEW.	
1-No. 4 Brown & S. Univ.	
1-No. 16 Brown & S. Plain.	
2-No. 60 Heald	
1-Rivett Radius	450.
1-No. 14 Gardner	550.

LATHES

1-14"x6" Hendey taper	\$ 775.
4-16"x6" Porter	150.
1-16"x6" Reed, grd. hd. mtr.	425.
1-18"x6" Lodge & Shipley, Geared Head	
1-18"x14" Monarch	450.

1-20"x15" Roulsted	450.
1-21"x14" South Bend	550.
1-22"x26" L. & S., Q. C. G.	
1-24"-42"x26" McCabe	
2-in-1	550.

MILLING MACHINES

1-No. 1 $\frac{1}{2}$ Cincinnati Pl.	\$ 500.
1-No. 2 Cincinnati Plain	675.
1-No. 3 Brown & S. Vert.	
1-No. 3 Becker Vertical	
1-No. 3 Hendey Univ.	1100.
1-Newton Slab Miller (Planer Type)	

PLANERS

1-24x24x8 Cincinnati	\$ 550.
1-36"x8" Pond, Motor Dr.	550.
1-36"x36"x16" Woodward, 4 heads	
1-36"x36"x18" Cincinnati	1500.
1-60"x60"x16" N.-B.-P.2 h.	
1-84"x56"x16" Gray	2000.

PRESSES-POWER

1-150lb. Bradley Helve Hammer	
1-No. 6 Beaudry Hammer	\$ 260.
1-300 lb. Bradley Helve	300.
1-500 ton Mesta Hydraulic	
1-No. 168 $\frac{1}{4}$ Toledo Toggle	
1-No. 148 Bliss Toggle	
1-NEW 2000 lb. Bd. Drop	2750.
1-NEW 3000 lb. Bd. Drop	3000.

SCREW MACHINES AND TURRET LATHES

1-18" Libby	1-26" Libby.
2-21" Gisholts	1-24" Gisholt.

MISCELLANEOUS

1-Hendey Centering Mach.	\$ 200.
1-No. 14 P. & W. Profiler	350.
1-26" Newton Cold Saw motor drive	500.
6-No. 3-26" B. & S. Gear Cutters	350.
1-No. 6-60" B. & S. Gr. Cut.	650.
1-Newton 36" Slotter M.D.	1500.
1-15" Gleason Generator	500.
1-24" Acme Bolt Cutter	250.

If the machines you need are not herein listed send us your requirements. We can fulfill your needs.

WIGGLESWORTH MACHINERY CO., 170 Summer St., BOSTON, MASS.

Cable Address—WIGMACHINE

Attractive Prices To Move Stock

BORING MILLS:	Rockford Hor. Boring, Drilling and Tapping Machine. D. & H. Horizontal Floor Borer 5" bar. Beta 7' 10" Vertical.
CRANES	Traveling D. C. & A. C. Traveling Hand Power Northern Engineering. 10 ton 46' 8" span. 12 ton 33' 8 1/4" span.
DRILLS:	No. 124 Buffalo Post. 14" Rockford, 24" Foote-Burt. 2" Fodick, 3" Bickford, t. a. Natec No. 10 C-12 Spindle, No. 1 M. T.
LATHES:	14"x6' Hendey, t. a. 16"x6' Monarch, q. c. g. 16"x8' South Bend, M. D., T. A. 24"x10' Lodge & Shipley. 30"x16' Lodge-Shipley q. c. g. 36"x14' Bradford q. c. g. 3"x36" Jones & Lamson turret.
MILLING MACHES.	Ingersoll Fixed Rail, 24"x21"x20" table. Ingersoll Slab 30"x30"x12", m. d. No. 4 Brown & Sharpe Universal. No. 4 Cincinnati Plain High Power. Standard No. 4 1/2.
PUNCH & SHEAR:	Candey-Otto, hand power, 1/2"x1/2". No. 6 Long & Allstatter S. E. Royenford No. 3, 16" throat 1"x1". Wain & Roos 15" throat, 3/4"x1/2". Massillon 22" throat, 3/8"x3/8", arch jaw. Cleveland "EF", 36" throat 1 1/4"x1". Cleveland E. F. 48" throat 1 1/4"x1", arch jaw. Beatty Single End 48" throat 1 1/8"x1 1/4" motor drive. Industrial Double End, 7/8"x7/8". No. 3 H. & J. Angle Shear 6"x6"x1". Lenox Rotary Bevel Shear, 3/4". Whiting No. 2 Rotary Shear 3/16". Landis No. 5 Cylinder.
GRINDERS:	Bryant No. 6 Chucking.
SHAPERS:	20", 24" Gould & Eberhardt, b. g., 20" Cincinnati.
MISCELLANEOUS:	Air Compressor, Chicago 10x12 motor drive. Air Compressor Curtis, 6"x6". Boiler, 100 H. P. Horizontal Tub. Bolt cutter, Reliance 2". Brake, Chicago Hand, 72"x1/16". Hammer, 250 lb. Little Giant m. d. Planer, 48"x48"x16" D. & H. Openside. Presses, No. 0 Consolidated, O. B. I. Presser, No. 1-No. 3 V. & O.—O. B. I. Presses, Nos. 18 Bliss, Perkins. Press, 50 ton Lourie Hydraulic. Presses, Arbor, No. 3 1/2 Greenerd; No. 1 Atlas. Saws, Hunter 24" hi-speed, m. d.; 18" Higley Cold. Screw Machines, Cone Automatic 1/2", M. D. Screw Mch., 2 1/4"x11" Acme; Meriden, 6 hole turret. Welding Plate, 44 1/2"x6' 8", 6 1/2" thick.

RUSSELL MACHINE COMPANY
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High Grade Machine Tools

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- 36" x 18" Fisfield Engine Lathe.
- 26" x 18" Walcott, 3S. C. D. B. G.
- 24" x 15" Lodge & Shipley, Q. C. G.
- 27" x 12" Sidney, H. D. 3S. C. D. B. G.
- 24" x 12" Boye-Emmes, 3 S. C. D., D. B. G., Q. C.
- 23" x 12" LeBlond 3 S. C. D. B. G.
- 22" x 12" American, 3S. C. D., D. B. G., brand new.
- 24" x 10" Lodge & Shipley, Q. C.
- 21" x 10" LeBlond, 3 S. C. D., D. B. G., late type.
- 18" x 10" Schumacher - Boye - Emmes, 3S. C. D., D. B. G., late type.
- 15" x 10" Whitcomb-B. Q. C. 3 S. C.
- 16" x 8" Prentiss Grd. Hd. S. P. D.

Grinders

- No. 70 Heald Grinder.
- No. 60 Heald Grinder.
- 16" x 72" Landis Crankshaft, Self Con.

No. 3 Ohio Plain.

- No. 3 Cincinnati Vert. H. P., S.P.D.
- No. 1½ Milwaukee, Double Over-arm, S. P. D. Universal.
- No. 6 Whitney Hand Millers.

Planers

- 24" x 24" x 8" Gray Planer.
- 30" x 30" x 8" Cincinnati Planer.
- 30" x 30" x 8" Powell, two heads.
- 26" x 26" x 12" Whitcomb-B., 2 heads.
- 36" x 36" x 12" Gray, 2 heads.
- 48" x 48" x 20" Gray, 3 heads.

Radial and Upright Drills

- 26" Cincinnati Upright, C. D.
- 26" Rockford Upright, C. D.
- 2½" Fosdick, Motor Drive or S. P. D.
- 3" Fosdick, S. P. D. thru gear box.
- 3-sp. Avey High Speed Ball Bearing.
- 6-spindle Rockford 20" B. G. P. F.
- 20" Barnes Camel Back.
- No. 30 Natco Multiple Spindle.

No. 1½-B Milwaukee Universal Milling Machine Double Over-arm; S.P.D. Universal Equipment.

- 6" x 18" Landis Plain, Self Contained.
- No. 2 Landis, Universal.
- 12" x 6" Landis Plain.
- 10" x 52" Landis Plain, Self Con.
- No. 4 Landis Universal.
- No. 6-20" Besley Disc Grinder, (New)
- No. 4-A Landis Special Automotive.
- No. 1 LeBlond Tool Grinder.
- Modern Chaser Grinder.

Gear Cutters

- 30" Flather Auto. Gear Cutter.
- No. 3-26" Brown & Sharpe, late type.
- No. 12 Barber-Colman Hobber, dsl. overarm, late type
- 39" Schuchardt-Schutte Gear Hobber.
- 18-H Gould & Eberhardt Hobber.
- 34" Whiton Auto. Bevel and Spur.

Boring Mills

- 34" Gisholt Vertical one turret head.
- 48" Colburn Vert. 2 aw. hds., late type.
- 60" Bullard Vertical 2 hds., S. P. D.
- 96" Bickford Vertical.
- No. 1 Rockford, Horizontal 2" bar.

Milling Machines

- No. 5 Brown & Sharpe Plain.
- No. 4 Cincinnati, Plain.

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Cincinnati Machinery & Supply Co.
28 West Second St., CINCINNATI, OHIO

Shapers

- 15" Smith & Mills.
- 16" G. & E. High Duty, cone drive.
- 20" Cincinnati Crank, B. G.
- 24" Queen City heavy duty, cone dr.
- 24" Hendey.
- 26" Potter & Johnson, cone drive.

Miscellaneous

- 6x6 Curtis Air Compressor.
- 1" National Bolt Cutter, complete.
- 1½" Landis Double Spdl. Bolt Cutter.
- 2½" Landis Bolt Cutter, Single-Spin-dle, lead screw.
- No. 2 LaPointe Broaching Machine.
- 12" x 12" Racine Hack Saw.
- No. 1 Davis Keyseater.
- No. 2 Davis Keyseater.
- No. 3 Baker Keyseater.
- No. 4 Garvin Profiler.
- No. 2 Kane & Roach Multiple P. & S.
- No. 76½" Toledo Grd. Punch Press.
- No. 42 Toledo Press.
- No. 75½" Bliss open back, geared.
- Wickes Punch & Shear, 48" throat, 1½" thru 1½".
- No. 8 Long & A. Punch & Shear.
- No. 2 Garvin Vertical Tapper.

REDUCED PRICES

On All Of These

Presses

600 ton American Can Embossing Press, motor drive.
3 1/2" B Bliss toggle draw press.
1 1/2" B Bliss toggle draw press.
7" Zeh & Hahneman percussion screw.
69" Stoll st. side geared, 8" stroke, steel tied frame.

Drills

12C Fox multiple, nearly new.
No. 2 Foote Burt, 4" spdl. gang.
3" spdl. Henry & Wright ball bear.
3" spindle Allen ball bearing.
2" spindle Allen ball bearing.
Sipp ball bearing.
36" Cincinnati, tapping attach.
26" Barnes sliding head (2).
24" Foote Burt heavy duty.
36" Dreses plain radial.

Lathes

13" x 5" Willard, taper, draw in.
12" x 6" Champion, draw in att.
16" x 6" Prentice, geared head.
18" x 8" Greaves & Klusman, q. c.
20" x 8" Lodge & Shipley, grd. hd.
22" x 10" Davis d. b. g., q. c.
34" x 10" Putnam, heavy type.
36" x 14" Fifield, plain change.

Planers

36" x 36" x 15" Betts, 2 heads.
48" x 48" x 14" Niles, 4 heads.
26" x 26" x 6" Pond.

Milling Machines

No. 6 Becker vertical with rotary.
No. 5 Becker vertical.
No. 3 Kempsmith plain.
No. 3H LeBlond, vertical attach.
No. 3 Cincinnati plain.
No. 3 1/2" P. & W. duplex.
Size A Briggs millers (2).
Five Whitney hand millers.
No. 25 Becker plain (2).
Two spindle P. & W. profiler.
Five 7H Becker Lincoln.

Grinders

6" x 32" Norton, very good (2).
14" x 72" Norton plain.
16" x 96" Landis plain.
No. 70 Heald internal, very good.
No. 1 Norton tool and cutter.
No. 2 Walker tool and cutter.
LeBlond tool and cutter.
No. 6 Bryant chucking, (2).
No. 26 Besly double disc.

Turret Lathes, Screw Machines

21" Libby full swing, side cart.
21" Gisholt, 3 1/2" hole in spindle.
18" Warner & Swasey fox lathe.
16" Dreses fox lathe.
18" Am. Tool & Mch. Fox lathes.
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No. 1 Garvin hand scr. mch's. (3).
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No. 6 Foster, 2" cap. rebuilt.

Automatic Screw Mch's.

4-OG B. & S. Automatics.
2-No. 2 B. & S. Automatics.
2-No. 0 B. & S. Automatics.
2-No. 00 B. & S. Automatics.
3-3 1/2" x 1/2" Cleveland model A.
1-7/8" Cleveland model A.
2-1 1/4" Cleveland model A.
1-1 1/4" Cleveland, dbl. cross slide.
2-2" Cleveland, dbl. cross slide.
3-2" Cleveland, sgl. cross slide.
1-1 1/4" Gridley mult., ser. 8167.
8-No. 2 B. & S. turret formers.

Punches—Brakes—Rolls

20" throat Cleveland, 3/4" in 3/4".
No. 5 Long & Allstatter, 7/8" cap.
No. 10 Wells gang punch, 7/8" wide.
10" Corrugating roll 26 ga.
10" Robinson toggle press brake,
20 gauge.
52 Beloit combined punch-shear.
41 Beloit splitting shear, 1/4" cap.

New 14", 20", 24" Kelly Shapers in Stock.

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1—No. 78½ Bliss S. S. Press, 10' Str., Wgt. 56,000 lbs.

VARIOUS SIZES OF USED O. B. I. PRESSES

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- 1—No. 16 Bliss Horning Press with Table and Horn.
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- 3—Nos. 1, 1½ & 3½-B Bliss Toggle Drawing Presses, std. specifications.
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- 1—7½" Cleveland Automatic Screw Machine, (Like New).
- 1—7½" Geometric Threading Machine (Like New).
- 1—7½" Rickett & Schafer Friction Tapper.
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- 1—No. 3 Dwight-Slate Marking Machine.
- 1—Pexto Beading Machine, 10 gauge capacity.
- 1—12" Shaper, complete with vise and countershaft.
- 1—Prentice Lathe 15" x 5' complete.
- 1—Cincinnati Universal Tool and Cutter Grinder.

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Automatics, Nos. 53 & 55 Nat. Acme.
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Bolt cutter, 28" Acme double head.
Bolt header, 1" Acme, iron body.
Bor. mill, 30" Rogers, 1' turret hd.
Bor. mills, 60" N.B.P.; 48" Colburn.
Brake, 8"x3/16" Robinson m. d.
Brake, 6"x10" gauge Dries & Krump.
Cutting off machine, 8" H. & R.
Drills, 20" Royersford, brand new.
Drill press, 25" Weigel, 20" Barnes.
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Gear hobber, No. 12 Barber-C.
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Grinder, No. 1 LeBlond tool & cut.
Grinder, No. 103 Rivett internal.
Grinder, No. 2 Landis, univ.
Grinder, No. 2 Gardner 18" disc.
Grinders, No. 16 Blanchard m.d., (2).
Hammer, 300 lb. Beaudry motor dr.
Keyseater, No. 2 Catlin 8" - 2".
Lathe, 45"x45" Pond, geared head.
Lathe, 84"x40" Putnam geared head.
Lathe, 50"x34" Pittsburgh, 25' centers.
Lathe, 42"x24" Niles, cone head.
Lathe, 26"x12" Greaves-Klusman.
Lathe, 27/30"x16" Reed-P., g. h.
Lathe, 20"x12" Hendey, q. c. g.

Lathe, 16"-18"x8' L. & S., q. c. g.
Lathe, 20"x8' L. & S. select hd.
Lathe, 16"x8' L. & S. selective head.
Lathe, 16"x7' Lehmann, grd. head.
Lathe, 18"x6" Rahn-L., q. c. g., taper.
Lathe, 16"x6" Hendey, yoke head.
Lathe, 14"x6" Hendey, yoke head.
Lathe, 12"x8' Hendey, taper, draw.
Milling mch., No. 4GS Hendey pl.
Milling mch., No. 3 Cincinnati cone.
Milling mach., No. 3B Milwaukee.
Miller, No. 14 Garvin, vertical.
Miller, No. 3 Becker vertical.
Millers, Nos. 2 & 1½ Knight vertical.
Miller, No. 2 B. & S. univ., cone.
Miller, No. 33 Kempsmith prod.
Pipe mch., 8" Jarecki & Saunders.
Pipe machine, 3" Jarecki No. 7B.
Press, No. 20 Bliss, o. b. i.
Punch-shears, Buffalo and Pels.
Radial drill, 5' American, tr. grd.
Radial drill, 4' Dees, s. p. d.
Radial drill, 3½" Bickford, gear box.
Radial drills, 3½" Mueller, 3" Western.
Shapers, 24" Cincinnati; 20" Steptoe.
Shear, 8"x3/16" Niagara No. 796.
Turret lathes, No. 4 W. & S. univ.
Turret lathes, 2A Warner & S. (2).
Turret lathes, No. 1B Foster univ. (2)

Bennett Machinery Co.
30 Church St., New York City

NEW 3 PHASE MOTORS CHEAP—FROM $\frac{1}{2}$ H. P. UP

LATHES

- 12" x 5' Cleveland, geared head.
- 14" x 6' Carroll-Jamieson, new, q. c.
- 14" x 6' Hamilton, grd. hd., motor dr.
- 14" x 6' Monarch, quick change.
- 14" x 6' Worcester.
- 16" x 8' Monarch, helical geared head, motor drive.

- 16" x 8' Hamilton, quick change.
- 18" x 10' American, quick change.
- 20" x 10' Hamilton, rapid production.
- 24" x 14' LeBlond.
- 24" x 24' Prentice, with raising block.
- 8x60" & 3x60" Fitchburg, Lo-Swing South Bend, new, all sizes.

TURRET LATHES and

- No. 52 National Acme automatic.
- No. 53 National Acme automatic.
- No. 54 National Acme automatic.
- 21" Gisholt, motor drive.
- 24" Gisholt, motor drive.

SCREW MACHINES

- 10" capacity Smurr & Kamen.
- 12" Milholland.
- 2x24 and 3x26 J. & L.
- No. 1 Foster, 13/16" capacity, (2).
- 1" Pratt & Whitney.

SHAPERS

- 14" Niles, traveling head.
- 16" O. & S., b. grd., new, low price.
- 16" Lodge & Davis, crank.

- 24" Rockford, back geared, crank.
- 24" O. & S. back geared crank.
- 25" Smith & Mills, back grd. crank.

PRESSES

- No. 10 and No. 15 Excelsior, foot.
- Nos. 3-A & 5-A Willard inclinable.
- Nos. 1, 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$ Robinson, new.

- Nos. 1, 2 and 3 Federal o. b. i.
- No. 39 Bliss hornig.
- Emco bench.

DRILLS and

- No. 1 Bausch multiple.
- No. 310 Baker heavy duty.
- Bausch 5' radial.
- Hilbert 3' radial.
- 22", 24", 25", 28" and 32", sliding hd.

RADIALS

- 24" Bickford, tapping attachment.
- 32" Hoefer, sliding head.
- 6' Ceiling drill.
- 44" Stover.
- Hole Hog, No. 66-D, 7-spindle

MILLING MACHINES

- No. 18 American plain.
- No. 2 Kempsmith plain.
- No. 4 LeBlond plain.
- No. 25 Bilton.
- No. 7 Becker, Lincoln type.

- No. 25 Becker plain, power feed.
- No. 2 H Brown & Sharpe plain.
- Ingersoll, 24" x 20" x 8" horizontal motor drive.
- No. 12 Brown & S. (Lincoln Type).

GRINDERS

- Nos. 1 & 78 W. & M. surface.
- 6" x 15" Fitchburg plain.
- 12" x 36" Cincinnati universal.
- 16" x 42" Landis universal.
- 36" and 66" Yates plate.

- No. 60 Heald cylinder.
- Schmitt cylinder grinder.
- J. B. X. W. & M. tool and cutter.
- No. 10 Besly 18" double disc.
- No. 20 Bryant, chucking.

MISCELLANEOUS

- Band saw, Clark, compound.
- Band saw, Napier 10" x 10'.
- Blower, No. 6 Piqua, pressure.
- Blower, positive pressure, Leiman
- Boring mill, Colburn No. 3, tur. hd.
- Brake 10', Keene, 18 ga.
- Brake, 12' Chicago Steel 18 gauge.
- Broaching mchs., 1 and 3 LaPointe.
- Compressors, 6x8, 8x8 and 9x8.
- Furnace, Weco electric.
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- Gear cutter, No. 13 Brown & Sharpe.
- Gear miller, Bilton No. 1.
- Hammer, 150 lb. Standard drop.
- Pipe machines, 2", 4" & 6".

- Planer, 36" x 36" Gray, heavy duty.
- Planer, 24" x 24" x 6', American.
- Planer, 36" x 36" x 14" Gray, 2 heads.
- Planer, 42" x 42" x 12" Gray, 2 heads.
- Punch & shear, 4x4x10" throat.
- Riveting hammers, Nos. 1, 2, 3, 4-A High Speed.
- Sand blast, Boland.
- Scale, 1500 lb. Toledo, dial type.
- Shear, 60" Peck, Stow & W., 18 ga.
- Shear, No. 362 Robinson.
- Shear, No. 562 Niagara.
- Shear, circular, Pettingell, 60" thrt.
- Threading mch., W. & P. 2-spindle.
- Washing machine, parts Blakeslee.

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OSBORNE & SEXTON
MACHINERY COMPANY
COLUMBUS OHIO**

JUST RELEASED

25 Motor driven lathes, sizes from 16x8 to 24x12, all quick change gear, some A. C. motor drive with 60 cycle, 220 volt, 3 phase motors, Reed-Prentice make, some D. C. motor drive with variable speed motors Reed-Prentice make, in excel. condition, at reasonable prices.

- 1-6' Bickford Universal Radial Drill, s. p. d.
- 1-4' & 1-5' Cincinnati-Bickford Universal Radial Drill, s. p. d.
- 2-No. 2 Reed Surface Grinders, A. C. motor drive.
- 9-Hendey Lathes, 12x5, 14x6, 16x8, 18x8, 18x10.
- 1-3x36 Jones & Lamson Turret Lathe, fully equipped.
- 3-16x6 Lodge & Shipley Lathes, 3 step c. p. d., d. b. g., q. c. g.
- 1-30x10 Niles-Bement-Pond Lathe, geared head, q. c. g.
- 1-30x14 Whitcomb-Blaiddell Lathe, d. b. g., q. c. g.
- 1-No. 6 Becker Vertical Miller, D. C. motor drive.
- 1-No. 3 Cincinnati Plain Milling Machine, c. p. d.
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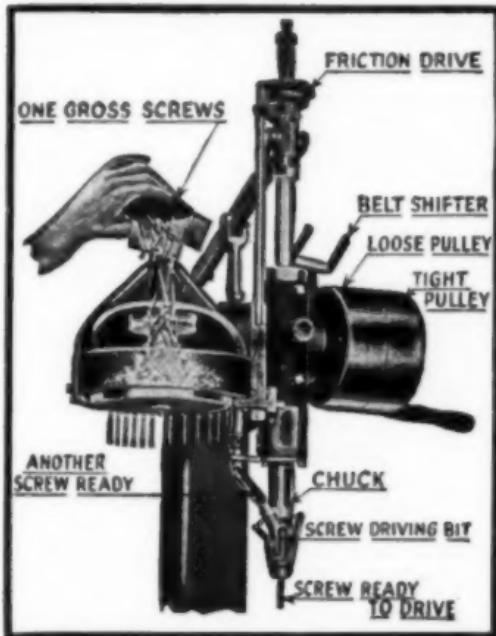
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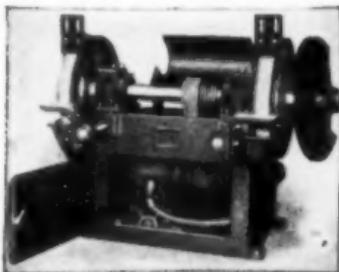
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